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TRANSACTIONS OF THE INDIANA HORTICULTURAL SOCIETY.

-1884.-

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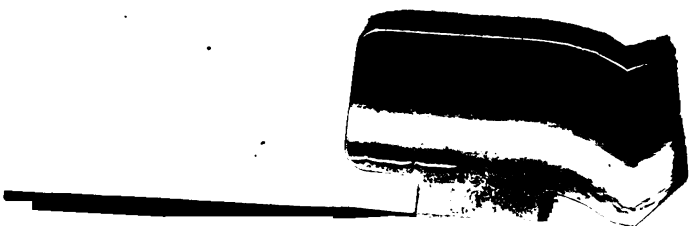

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TRANSACTIONS

OF THE

INDIANA HORTICULTURAL SOCIETY

FOR THE YEAR 1884,

BEING THE

PROCEEDINGS OF THE TWENTY-FOURTH ANNUAL SESSION,

HELD AT

Winchester, Ind., December 2th, 3d and 4th, 1884,

TOGETHER WITH

REPORTS FROM LOCAL SOCIETIES, ESSAYS, PAPERS, ETC.

By C. M. HOBBS, Secretary.

7314

INDIANAPOLIS:
WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING.
1885.

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BRIDGEPORT, IND., February 3, 1885.

GOVERNOR ISAAC P. GRAY:

I have the honor of submitting herewith the Twenty-Fourth Annual Report of the Indiana Horticultural Society, in accordance with a provision of law.

C. M. HOBBS,
Secretary.

STATE OF INDIANA,
EXECUTIVE DEPARTMENT, February 3, 1885.

Received and examined by the Governor. March 5, 1885, transmitted to the Secretary of State to be filed and preserved in his office, and published by order of the Commissioners of Public Printing and Binding,

PIERRE GRAY,
Private Secretary.

Received March 5, 1885.

W. R. MYERS,
Secretary of State.

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OFFICERS

OF THE

INDIANA HORTICULTURAL SOCIETY

FOR THE YEAR 1885.

President—Sylvester Johnson, Irvington.
First Vice President, 4th District, E. Y. Teas, Dunreath.
Second Vice President, 1st District, F. M. Polk, Tobinsport.
Third Vice President, 2d District, D. F. Willey, Charlestown.
Fourth Vice President, 3d District, J. W. Ragan, Fillmore.
Fifth Vice President, 5th District, L. B. Custer, Logansport.
Sixth Vice President, 6th District, I. D. G. Nelson, Ft. Wayne.
Secretary—C. M. Hobbs, Bridgeport.
Treasurer—Daniel Cox, Cartersburg.

EXECUTIVE COMMITTEE.

J. C. Ratliff, Richmond.
D. E. Hoffman, Winchester.
W. H. Ragan, Greencastle.

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VICE PRESIDENTS

AND THE

COUNTIES COMPOSING THEIR RESPECTIVE FRUIT DISTRICTS.

FIRST DISTRICT.—F. M. Polk, Vice President. Crawford, Daviess, Dubois, Gibson, Greene, Knox, Lawrence, Martin, Orange, Perry, Pike, Posey, Spencer, Sullivan, Vanderburgh and Warrick.

SECOND DISTRICT.—D. F. Willey, Vice President. Bartholomew, Brown, Clark, Dearborn, Decatur, Floyd, Franklin, Harrison, Jackson, Jefferson, Jennings, Ohio, Ripley, Scott, Switzerland and Washington.

THIRD DISTRICT.—J. W. Ragan, Vice President. Boone, Clay, Clinton, Fountain, Hendricks, Monroe, Montgomery, Morgan, Owen, Parke, Putnam, Tippecanoe, Vermillion, Vigo and Warren.

FOURTH DISTRICT.—E. Y. Teas, Vice President. Blackford, Delaware, Fayette, Grant, Hancock, Hamilton, Henry, Howard, Jay, Johnson, Madison, Marion, Randolph, Rush, Shelby, Tipton, Union and Wayne.

FIFTH DISTRICT.—L. B. Custer, Vice President. Benton, Cass, Carroll, Fulton, Jasper, Laporte, Marshall, Newton, Porter, Pulaski, Starke, St. Joseph and White.

SIXTH DISTRICT.—I. D. G. Nelson, Vice President. Adams, Allen, Dekalb, Elkhart, Huntington, Kosciusko, Lagrange, Miami, Noble, Steuben, Wabash, Wells and Whitley.

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CONSTITUTION

OF THE

INDIANA HORTICULTURAL SOCIETY

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1. This Society shall be known as "INDIANA HORTICULTURAL SOCIETY."

2. Its officers shall consist of a President, six Vice Presidents (who shall be elected one from each Fruit District, and by virtue of their election, members without fee for the time for which they are chosen), Secretary, Treasurer, and Executive Committee of three.

3. The President shall preside at and conduct all meetings of the Society, and in his absence the Vice Presidents, in their order, shall perform the same duties.

4. The Secretary shall record all the doings of the Society, collate and prepare all communications, etc., for the public press, and pay over all money received from members, or otherwise, to the Treasurer, on his receipt; shall receive and answer all communications addressed to the Society; establish and maintain correspondence with all local, county, district and State Horticultural Societies, and secure by exchange their transactions, as far as possible, to aid the President, as an executive officer, in the dispatch of business relating to the meetings of the Society; preparing and publishing circulars and notices of horticultural and similar meetings of general interest, and report to the annual meeting of the Society an abstract of the matter that has come into his possession, which, with its approval, shall become part of the transactions for the present year.

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5. The Treasurer shall collect and hold all funds of the Society, and pay out the same only on the order of the Secretary, countersigned by the President.

6. The officers shall be elected separately and annually, by a ballot vote, and hold their office until their successors are elected.

7. The object of the Society being to collect, condense and collate information relative to all varieties of fruits, and dispense the same among the people, every member, except the Vice Presidents, shall pay into the treasury one dollar a year for the purpose of publishing, and other expenses: *Provided*, That members of local Horticultural Societies may become members by paying into the treasury, through their respective local organizations, the sum of fifty cents each. Any person interested in horticulture may become a member by forwarding to the Treasurer or Secretary the fee of membership.

8. Every member shall be entitled to a copy of the transaction of the Society as often as the same shall be published.

9. The President, Secretary and Executive Committee may call a meeting of the Society at any time and place they may consider advisable, by a notice of thirty days in the public press.

10. It shall be the duty of each Vice President to make an annual report to the Society upon the fruit crop in his respective district, together with such recommendations and suggestions as may seem best for the interests and advancements of horticultural knowledge within said district, which shall be, by the Secretary, published in the transactions of the Society for the year in which such reports are made.

11. This Society shall hold its annual sessions on the first Tuesday in December in each year, and at such place as the Society shall designate at its previous meeting. It shall be the duty of the Executive Committee to procure rooms and make all necessary arrangements for the meetings of the Society, to make out a programme of business for each meeting, and attend to such other duties as the Society may from time to time direct.

12. The officers of this Society shall constitute a Board of Horticulture, five of whom shall constitute a quorum for the transaction of business, the officers of the Society to be officers of the Board, said Board to meet immediately on the adjourn-

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ment of the Society, and afterwards on their own adjournment. It shall be the duty of the Board of Horticulture to collect horticultural information, and they shall be authorized to employ an agent or agents to visit different portions of our State or adjoining States to collect information of general interest, and shall be authorized to draw on the Treasurer for money to pay the expenses of said agent or agents, when there is money in the treasury not otherwise needed, and said Board shall make full and accurate reports of their proceedings, with all horticultural information collected, to the regular meeting of the Society.

13. By-laws and alterations in the constitution, for the purpose of governing further wants of the Society, may be enacted by a majority of the members present at any regular session.

HONORARY MEMBERS.

Z. S. Ragan, Independence, Missouri.
Robert Manning, Salem, Massachusetts.
N. Ohmer, Dayton, Ohio.
Walter G. Stevens, Centerville, Indiana.
Mrs. M. P. Haines, Richmond, Indiana.
Mrs. Helen V. Austin, Richmond, Indiana.
John C. Teas, Carthage, Missouri.
Charles Downing, Newburgh, New York.
Prof. R. T. Brown, Indianapolis, Indiana.
I. D. G. Nelson, Fort Wayne, Indiana.
Cornelius Ratliff, Richmond, Indiana.
Gov. R. W. Furnas, Brownsville, Nebraska.
S. S. Richie, New Paris, Ohio.
Prof. J. T. Burrill, Champaign, Illinois.
Jas. G. Kingsbury, Indianapolis, Indiana.
Chas. W. Garfield, Grand Rapids, Michigan.
I. S. Baty, Simpsonville, Kentucky.

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LIST OF MEMBERS.

VICE PRESIDENTS.

E. Y. Teas, Dunreith.
F. M. Polk, Tobinsport.
D. F. Willey, Charlestown.
J. W. Ragan, Fillmore.
L. B. Custer, Logansport.
I. D. G. Nelson, Ft. Wayne.

ANNUAL MEMBERS.

NAME.	RESIDENCE.
Allen, Abner	Wabaunsee, Kansas.
Albertson, F. R.	Bridgeport, Ind.
Anderson, H. P.	Sugar Creek, Ind.
Buker, F. M.	Rome City, Ind.
Bennett W. C	Scotland, Ind.
Cochran, L. B.	Crothersville, Ind.
Eaton, Ezra	Sugar Creek, Ind.
Frank, John L.	New Amsterdam, Ind.
Freeman, John	Knightstown, Ind.
Gleen, A.	Columbus, Ind.
Gaiser, H. L	Seymour, Ind.
Gardner, C. T	Tobinsport, Ind.
Gregg, W. J.	Portland, Ind.
Gregg, L. M.	Pennville, Ind.
Grondyke, Samuel	Eugene, Ind.
Hogue, H. M	Vincennes, Ind.
Jackson, W. L.	Connersville, Ind.
Latta, Prof. W. C.	Lafayette, Ind.
McIntosh, G. W	Rego, Ind.
Pitcher, John M	Sugar Creek, Ind.
Polk, W. R.	Tobinsport.
Ragan, W. H.	Greencastle, Ind.
Rice, L. C	Portland, Ind.
Ruddick, B. S.	Columbus, Ind.
Rouk, Daniel W	New Ross, Ind.
Simpson, H. M	Vincennes, Ind.
Sterling, O. C	Camden, Ind.
Sanders, James	Westfield, Ind.
Troop, Prof. J	Lafayette, Ind.
Turner, George W.	Cold Spring, Ind.
White, Wm	Tobinsport, Ind.

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SOCIETY MEMBERS.

Randolph County Society.

J. W. Wilmore, Winchester.
A. Stone, Winchester.
T. W. Kiser, Winchester.
J. P. Lesley, Winchester.
Mrs. Mariah Lesley, Winchester.
Obadiah Fields, Winchester.
B. F. Wilmore, Winchester.
Marion Harter, Winchester.
E. C. Hiatt, Winchester.
E. H. Butler, Winchester.
Jesse Hyatt, Winchester.
Mrs. Alice Moore, Winchester.
D. E. Hoffman, Winchester.
W. H. Dunory, Winchester.
Strother Brumfield, Winchester.
C. W. Osborn, Economy.
Levi Hill, Creet.

Parke County Society.

L. H. Adamson, Judson.
S. B. Woodward, Caloma.
B. C. Hobbs, Bloomingdale.
J. E. Woodward, Bloomingdale.
D. S. Woodward, Bloomingdale.
Nathan Harvey, Bloomingdale.
C. W. Mendenhall, Bloomingdale.
Thomas Kersey, Bloomingdale.
A. D. Tomlinson, Bloomingdale.
James Spray, Bloomingdale.
Kersey Newlin, Bloomingdale.

Delaware County Society.

G. Cowing, Muncie.
Wm. Ribble, Muncie.
Parker Moore, Muncie.
John Fulhart, Muncie.
C. H. Wood, Muncie.
P. W. Patterson, Muncie.

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S. Hathaway, Muncie.
H. C. Marsh, Muncie.
W. H. Vance, Springport.
C. W. Legg, Muncie.

Wayne County Society.

J. D. Hampton, Votaw.
J. C. Stevens, Centerville.
Hannah C. Grave, Richmond.
Mrs. H. V. Austin, Richmond.
Daniel Bulla, Richmond.
Geo. H. Lewis, Richmond.
Thos. B. Morris, Richmond.

Marion County Society.

Sylvester Johnson, Irvington.
W. B. Flick, Lawrence.
J. W. Apple, Oaklandon.
C. M. Hobbs, Bridgeport.
J. W. Johnson, Indianapolis.
Mrs. C. Robbins, Indianapolis.
Mrs. Georgia Wright, Indianapolis.
Peter Raab, Indianapolis.
Henry Mankedick, Indianapolis.

Howard County Society.

Dr. T. V. Gifford.

Madison County Society.

Edward Roberts, Pendleton.

Hendricks County Society.

Daniel Cox, Cartersburg.
Dr. G. Hunt, Plainfield.
Dr. Allen Furnas, Danville.

Putnam County Society.

Prof. J. B. DeMotte, Greencastle.
W. A. Workman, Greencastle.

Floyd County Society.

Jonathan Beard, New Albany.
Edward Yenowine, New Albany.

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PROCEEDINGS

OF THE

TWENTY-FOURTH ANNUAL MEETING

OF THE

INDIANA HORTICULTURAL SOCIETY.

FIRST DAY.

In response to the following programme, the Society convened at Winchester, in the City Hall, December, 2, 1884:

PROGRAMME.

Tuesday Morning. Arrangement of the Hall, Social Meetings and Informal Business.

Tuesday Afternoon. Address of Welcome by Gen. A. Stone, Response by President Johnson, The President's Address, Reports of Officers, Appointing Committees, etc.

Tuesday Evening. The Preparation of Seeds and Plants—Dr. Allen Furnace; What We Owe to the Entomologist—Prof. J. Troop.

Wednesday Morning. Experiments with Fertilizers—Prof. W. C. Latta; Small Fruits—Granville Cowing.

Wednesday Afternoon. The Future of Indiana Soils—Prof. R. B. Warder; Preparing Fruits for Market—E. H. Williams.

Wednesday Evening. How Shall We Make Farmers of Our Boys?—Prof. J. B. DeMotte; Arbor Day, How Observed—John W. Holcombe, Superintendent Public Instruction.

Thursday Morning. Rural Homes—Prof. E. H. Butler; Report on Purdue University—Joseph Ratliff.

Thursday Afternoon. Report of Committees, Resolutions, Miscellaneous Business, and Adjournment.

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In addition to the foregoing, there will be other papers, reports from the District Vice Presidents—E. Y. Teas, F. M. Polk, D. F. Willey, J. W. Ragan, L. B. Custer, and I. D. G. Nelson; also, reports from T. V. Gifford, delegate to Ohio; J. D. Hampton, delegate to Michigan; W. H. Ragan, delegate to Illinois; E. Y. Teas, delegate to M. V. meeting at Kansas City.

A query box will be provided, and, if properly used, will make a very interesting feature of the programme. It is hoped that we will have ample time for the discussion of all interesting and practical questions that may come up.

Winchester is the county seat of Randolph county, seventy-five miles northeast of Indianapolis, on the Bee Line railroad.

There is a thriving local horticultural society there that will do all it can to make the visit of the members of the State Society interesting and pleasant. Free entertainment will be given to all persons attending the meeting. Can get excursion rates (one and one-third fare) over the Bee Line, on a certificate of attendance from the Secretary. We will probably get reduced rate from Lafayette over the Kankakee Line via Indianapolis, and from Terre Haute over the Vandalia.

We hope to have a large and interesting meeting. These annual meetings deserve a large attendance. They may be made occasions of much interest and profit to the practical horticulturist, and a large attendance of this class is desired. By thus coming together annually from our different fields of labor over the State, getting acquainted, comparing notes and experiences, we are not only interested but advancing the horticultural interests of the State. It is desired that all who have anything of interest in the way of plants, fruits, implements, etc., will take them to the meeting, and in this way add much to its interest. All should come brimful of ideas and ready to communicate.

C. M. HOBBS,
Secretary.

SYLVESTER JOHNSON,
President.

AFTERNOON SESSION.

At 2:30 o'clock P. M. the Society was called to order by the President, Sylvester Johnson.

In obedience to the programme, the exercises were opened by the following address of welcome by General A. Stone:

Mr. President and Members of the Indiana Horticultural Society:

I have been delegated by the Randolph County Horticultural Society to perform the pleasing and agreeable duty of extending to you our most heartfelt thanks for the privilege of meeting and greeting you at this, your annual meeting of the parent society in our midst, and trust that much good may result to you and us from the able council and encouragement you may impart to us during your present session, upon such subjects as shall come before your body, and in an especial manner the best way to beautify our homes and surroundings, and in making better and happier men and women.

It was once said, and I think truthfully, that the man who so improves his lands that two spears of grass may be produced where but one grew before is a public benefactor. If such is the fact, how much more are you entitled to that

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honor when stated as a fact that your labors of love for the advancement and enjoyment of about all that goes to the true make-up of human society and the full happiness of this life, short as it is, is considered.

For instance take the floral world as one example, and I shall only venture on the outside of the subject, as to undertake anything further would be out of place with me on this occasion; besides an attempt of this kind, on my part, would result in my floundering in water too deep for my caliber. To illustrate briefly, take the rose, that "queen of flowers," look at it as it comes from the hand of nature. True, it is a beautiful flower when seen under favorable circumstances; but nearly all of them are about the same in size, with but slight differences in shades of color, and all that I have seen are of the single varieties, all in the same latitude blooming at about the same time, and of short duration, with little or no fragrance. Compare, if you please, the original flower as I have truthfully described it, with the thousands of the more decidedly beautiful roses now produced in all colors, vieing with the colors of the rainbow, many of them very decidedly fragrant and large double as well as single varieties, and with but little care and protection on our part may bloom every day in the year. This marked change in this one flower will apply to the thousands of other lovely and beautiful flowers now being produced all over our land where these societies exist and prosper. The same title of "public benefactor" may be well applied to that man or that society who, to a certain extent, apply themselves to the planting of useful and ornamental trees in all proper places and situations for the adornment of our homes and our villages and cities, *provide that tree be not a silver-leafed poplar.*

The above, of course, only applies to outward adornment, *but how marked the improvement,* and who is the man or woman that does not feel that he or she has lived for a useful purpose when surrounded with these beauties and luxuries, and especially so when knowing that it is produced by their own intelligence and labor.

But when you take up the subject of fruits, that enter so largely into our daily consumption, both large and small, and upon which so much of our health and happiness and longevity depends, I am wholly at a loss for words to express my gratitude to the men and women of your and kindred societies, and the individual efforts of the scientists of this and former periods for their wonderous strides in this direction. I will simply say, compare the beautiful apples of the present day, in all their shapes, sizes, colors and taste, with their time of ripening, quality and flavor, keeping qualities, etc., with the little sour and bitter crab apple as it comes from the hands of nature, and you have a true picture of the conclusions and ideas I wish to convey, and then say to me, if you can, how much are we indebted to your society for the efforts you have made during its existence, or for a period a little over twenty years, in this one fruit, all of which equally applies to the various small fruits as well. True, after all our labors and efforts in producing these wonderful changes in flowers and fruits, there comes some small and at times larger enemies of our race, as we think, pests unknown to the fathers, that will, unless checkmated, destroy in a few hours, or days at most, all that we have accomplished in the way of improvements for years; but to stop the ravages of these destroyers of our comforts, happiness and health itself has been the study of yours and similar societies and scientists for years, and while their success has been great, yet we find daily the attacks of our enemy assuming new forms and gigantic proportions, seemingly determined on the total destruction of all our flowers and fruits. For the destruction of these vindictive *pests* the ablest pens of this and other enlightened nations have been employed for generations, for all of which we truly feel grateful, except as to the mistaken notion of introducing in this country, as was supposed, the insect distroyer, the *English sparrow,* to which, I

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believe, is to be attributed the fact of the disappearance of so many of the sweet songster birds that once adorned our homes and surroundings, and I believe the natural destroyer of many of the insects alluded to, but now absent, perhaps, forever.

But enough of this for my present purpose; I not only most heartily join in welcoming you, Mr. President and members, on the part of the Randolph County Society, but also will say that I but voice the general sentiment and feelings of our whole people of this beautiful little city of ours, in extending to you a hearty welcome to our hospitable homes, families and firesides, in which we pledge you that nothing will be left undone to make your short stay among us pleasant and agreeable.

As you who are strangers to this part of our State doubtless have observed by this time that this is purely an agricultural community, surrounded with a fertile soil, with prosperous and enterprising farmers, who in the main own their farms, that you observe are so well cultivated and improved, and they are not *too fine haired* to cultivate them with their own hands, with satisfactory results, and not at all dependent upon *puts* and *calls*, and *bears* and *bulls*, as are the great financial centers of our country, for the very necessities of life. I can not, therefore, promise you the fine drives through miles of well-built streets, nor show you gorgeous structures and palatial residences, princely opera halls and costly theaters, nor great churches renowned for their architectural beauties, nor large manufacturing establishments employing hundreds of men, upon whose industries thousands of women and children depend for their daily subsistence. Nothing of this kind can we promise you, yet in all these directions agricultural Randolph county and the good staid old town of Winchester claim to have made many progressive strides in the onward march of improvement towards the higher plane of civilization and culture. When the writer first moved to this town, in 1839, being then a young man of twenty-two, the whole country was then almost a dense, unbroken forest, with but few *patches* of timber cleared out here and there, and called farms, with but few roads—none, indeed, worthy of the name. They mostly consisted in the clearing out of thick undergrowth of spice-wood, and some of the larger trees, and in other places merely *blazing* the trees to indicate the roads. The whole country then was full of wild game, such as bears, deers, turkeys, wolves, etc., etc., with but few school houses, and they miles apart, built of round logs and *daubed*; nearly one entire end left open for the fireplace, in which, for fuel, was used logs large enough for saw mill logs of the present day, the heat from which, when fired, was enough to roast one side of the little fellows, while the other side of them was almost freezing; with one whole log on either side of the house left out, with the openings covered with greased paper, for lights; the inside of the apartments supplied with seats as follows: Long logs, with one side flattened, resting on split pegs carefully cut off so as to keep each little fellow's feet, when seated, from six to eighteen inches from the dirt floor.

The churches, though but few, were but little better.

This is no pen picture, but a plain statement of facts.

But now mark the change. Travel from this place in any direction, you will find good gravel roads, and on each mile of road you will find comfortable and commodious school houses, mostly built of brick, well supplied with all modern improvements, and all the appliances necessary for teaching, with a fine corps of teachers judiciously and carefully selected, and as bright and cheerful scholars as can be found anywhere in this rapidly progressive country of ours. The length of each annual session of school varies from six to eight months, in the rural districts, and from nine to eleven months in the towns and villages.

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Our churches are numerous and well located, the construction of which, while not gorgeous, yet they are comfortable places for worship, and hence I can safely say that our people are contented and happy, and feel proud of our onward and upward strides in the great human race for a better and higher sphere of usefulness while permitted to remain here.

In conclusion allow me to say that I feel a greater pleasure in being selected to welcome you here, from the fact that I was "in at the bornin'" of this Society, and hence one of the original parties that assisted in organizing the first meeting of this State Society at Indianapolis, in 1861 or 1862. How few of these first men are left! Alas, how few!

Again, Mr. President and members, permit me to repeat in all candor and sincerity to this body, Welcome, thrice welcome.

A. STONE.

The President then responded as follows:

General Stone, Ladies and Gentlemen:

One year ago, when this Society was invited to hold its next meeting at Winchester, we were told its members would be made welcome, but certainly none of us were prepared for such a welcome as this; one so cordial, so heartfelt, so generous. It proves conclusively that Brothers Hoffman and Kiser knew whereof they spoke, and that they knew the people of Winchester and vicinity better than we did. We receive this welcome in the same spirit in which it is extended, and we shall be only too well pleased if the character of our deliberations shall merit the interest which your words of welcome suggest.

The flattering terms in which your address alludes to the good this Society has done, can not but be very gratifying to its members, who have labored long and earnestly to effect these results. To be thus recognized as a factor in producing the grand results named in the improvement of flowers, fruits and home, does much to compensate for a life service in horticulture, and for all its drawbacks and disappointments.

We fully realize the accuracy of the pen picture of your city and county, which you present us, and we are not surprised that a population composed largely of agriculturists and horticulturists, who cultivate their own soil in their own way, should be prosperous and in the possession of that happiness and contentment unknown to dealers in Wall street, New York, or in margins in Chicago.

As to the absence of "costly residences, opera halls and large manufactories" in your beautiful little city, of which you speak, it may be said that the average horticulturist cares nothing for these. He is a plain man, does business in a plain way, talks plainly, and is, in every sense, unostentatious. But when you come to tender the hospitalities of your city and your homes to him, which you have so generously done, you do something which he can and does very highly appreciate. There is nothing in which he takes a livelier interest than the prospect of a good dinner or a comfortable bed.

Not having been in your county or city for more than thirty years, until to-day, I very readily recognize the marked improvements on your farms and in your city, which was at that time a mere village.

Another circumstance which augments our pleasure in meeting with you on this occasion, is the fact that one of our best and largest local societies is located here. More of its members are members of the State Society than any other in the State.

Its proceedings, which have been so kindly and regularly sent to me by friend

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Hoffman, denote a zeal and ability, possessed by its members, which promise great success and influence in your city and county. No doubt but that much of the improvements in your fruits and in the adornments of your homes, may be attributed to the influence of your Society. In conclusion, allow me to say that we cordially invite all your citizens, especially the ladies, to attend all our sessions and participate in our discussions.

And now, on behalf of the Indiana Horticultural Society, I tender to you, General, and to the citizens of Winchester and vicinity, sincere thanks for this very hearty welcome.

After his response, the President proceeded to read his annual address.

PRESIDENT'S ANNUAL ADDRESS.

Ladies and Gentlemen, Members of the Indiana Horticultural Society:

It affords me great pleasure to greet you at this, the twenty-fourth annual session of this society. This meeting, like its predecessors, will soon pass into history. The character of this history will be what you, who have gathered together from different parts of the State, make it. Let us see to it that that character does not fall below that already established; but let us rather, catching the inspiration of the age, improve and elevate it. The meetings of this society have been conspicuously practical. They have been composed mainly of practical men and women, who not only study the art of horticulture, but practice it in all its details, closely observing results, and who discuss practical questions in a practical way, reaching practical conclusions. It is not strange, then, that this and similar organizations elsewhere have vastly improved the arts of floriculture, horticulture and pomology, adding largely to the varieties and beauty of flowers, to the varieties and qualities of fruits, to the beautiful surroundings of the home and the consequent happiness of its inmates. It is for the pnrpose of continuing this good work so worthily begun by the Warders, the Ragans, the Howlands, the Furnases, and other good men, that we are met her to day.

THE PAST YEAR

has not been all sunshine to the horticulturist. While he has much to be thankful for, yet great promise and raised expectations have been met by failure and regret. Early spring covered apple and pear trees with bloom such as was probably never excelled in beauty and profusion, and as the usual danger of frost did not threaten, it was supposed that an abundant fruit crop would result. But either the abundance of rain or its low temperature seemed in some way to affect the bloom in such a way as to prevent the formation of fruit germs, so that in many parts of Indiana the crop of apples and pears has been much under an average. As a compensation for this failure we had an abundant crop of some of the smaller fruits, notably the raspberry and strawberry, the latter touching the lowest market price ever known in Indianapolis.

TRI-STATE MEETING.

Prior to our last meeting, propositions were made and correspondence had looking to a joint meeting of the horticultural societies of the States of Indiana, Ohio and Michigan. At our last meeting your attention was directed to this matter by

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your presiding officer, and a resolution was passed favoring such joint meeting, but referring the whole question to the executive committee. The societies of the other two States also referred the question to their executives. After much correspondence between the executives as to the time and place for the meeting, it became apparent that an agreement could not be reached, and by common consent the whole matter was indefinitely postponed.

ORGANIZATION OF LOCAL SOCIETIES.

To a very limited extent this society is a beneficiary of the State. This places us under obligation to make some corresponding return. It ought to be our endeavor to inculcate, as rapidly and widely as possible, in the minds of the people of the State not only a love of the art of horticulture, but to teach them the intelligent practice of the same. To accomplish this effectively we ought to have at least one local society in each county of the State. Is this society doing its duty in this respect? It is feared not. As a rule horticultural or other local organizations do not spring into existence uncalled or unsought, but they are rather the result of some systematic effort on the part of existing organizations, whose members, possessing the spirit of the missionary, go forth to do good. At two different times has this society made efforts to enlarge its influence by the organization of local societies, and in both instances it was reasonably successful. Some of the best local societies of our State are the result of these efforts. Prominent among these is the one whose hospitalities have been this day so gracefully tendered to us, and so gladly accepted by us. Believing, therefore, that an increase of local societies will largely add to our facilities for usefulness, I respectfully recommend that at an early stage of this meeting a committee be appointed whose duty it shall be to consider and report some plan by which these objects may be attained. As another means of enlarging the membership of this society, and thereby extending its usefulness, I recommend that some measure be adopted by which the expense of attendance of a given number of delegates from each local society to our annual meetings be paid. As a means of accomplishing this end, I suggest for your consideration that something like the following be adopted, to-wit: "That each local society holding regular meetings, and having a membership of not less than twenty, ten of whom shall be members of the State society, be allowed the actual expense of two delegates for each ten members of the local society who become members of the State society." Thus, an inducement would be offered for the organization of local societies, a larger attendance could be secured, and persons living in remote parts of the State would be more likely to attend.

LEGISLATION.

As the Legislature of this State is to convene in a few days, it is not only the privilege but the duty of this society to direct its attention to certain much needed laws looking to the protection of those engaged in horticulture, and to ask for their enactment.

Some laws which, in my opinion, we ought to have, and others which ought to be amended, I will here name, to-wit: A law establishing the office of State Entomologist, the duty of whose incumbent will be to enlighten the people on the subject of insects, teaching them which are enemies and which friends, which to destroy and which to protect.

A law establishing the office of State Ornithologist, whose incumbent would tell us all about birds, what their uses and what their abuses, if any.

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A law to more certainly protect the quail by prohibiting the killing of it for from three to five years.

A law preventing stock, of any kind, running at large, thus protecting our forest and shade trees, lawns and gardens

An amendment to the title of the law requiring a license fee, which goes to the benefit of agricultural societies, ought to be made so that according to the constitution the title shall embrace the subject matter of the law, thereby largely increasing the revenue for these associations.

Another subject of importance to this society will be presented to the Legislature, and that is the small appropriation which has beeu regularly made up to 1881, but not sinee, owing to the failure of the specific appropriation bill at the session of 1883. The approaching General Assembly ought in justice to make such an appropriation for the benefit of this society as will place it upon the same footing as it would have been in had that of 1882 not failed. It is, therefore, hoped that steps will be taken at this meeting looking to a proper presentation of these questions to the Legislature.

THE WORLD'S EXPOSITION AT NEW ORLEANS,

which opens on the 16th inst., will be an event of no ordinary magnitude. It will be to all intents and purposes "A World's Fair." All the nations of the earth have been invited to make exhibits, and most of them will respond by taking something to that "quaint old city" for the eyes of all nations to gaze upon. One of the most attractive departments of this great exhibition will be the horticultural. I need only name Mr. Parker Earle, of Illinois; Mr. P. J. Berckmans, of Georgia, and Charles W. Garfield, of Michigan, as the men into whose hands the organization of the horticultural exhibition is placed, to satisfy you of its entire success.

Its magnitude may partially be realized upon hearing the following quotation from the premium list of this department, to-wit: To provide proper facilities for so important an exhibition, they have erected a large and beautiful horticultural building, or conservatory, the walls and a large proportion of the roof of which are covered with glass, and specially adapted to the exhibition of both fruits and plants. This building is 600 feet long, with an average width of 114 feet. It will furnish table room for one hundred and twenty-five thousand plates of fruit and forty thousand feet of space for the exhibition of plants." My object in calling attention to this exhibition at this time is to recommend that this society take immediate steps looking to a creditable display of the horticultural products of Indiana, both as a State exhibition and for premiums. Nearly, if not all the other States will be there with their products, and certainly our State pride will not allow us to fail to make an exhibit. General Carnahan, one of the Commissioners of this State, gives us the assurance that he will pay for the transportation of any and all articles we may send for exhibition. I therefore recommend that a special committee be appointed at your earliest convenience to consider and report upon the advisability of making an Indiana horticultural exhibit at New Orleans.

Hoping that you may have a pleasant, harmonious and profitable meeting, I, for the eighth time, return to you the "robes of this office," hoping they many not have been tarnished by any act of mine.

SYLVESTER JOHNSON,
President.

The annual reports of the Secretary and Treasurer were then presented, as follows:

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FINANCIAL STATEMENT

For the Year ending October 31, 1884.

DISBURSEMENTS.

Printing and Stationery	$15 75	
Express on Reports	10 30	
Postage	15 15	
Wrapping paper and twine	2 25	
Telegrams to Ohio, Illinois, and Kansas Meetings	1 60	
Total expenditures		$45 05
Salary		250 00
Total expense		$295 05

RECEIPTS.

Received of Treasurer on account of salary	$165 00
Balance due Secretary	$130 05

WARRANTS DRAWN ON THE TREASURY.

Warrant No. 1, December 4, 1883—W. H. Ragan, expense to M. V. Meeting at New Orleans	$50 00	
Warrant No. 2, December 4, 1883—W. H. Ragan, balance of salary	71 68	
Warrant No. 3, December 5, 1883—Daniel Cox, expenses as Treasurer	5 00	
Warrant No. 4, December 6, 1883—Helen V. Austin, attending meeting at New Albany	9 50	
Warrant No. 5, December 6, 1883—Sylvester Johnson, postage and stationery	11 25	
Warrant No. 6, December 6, 1883—F. R. Albertson, reporting proceedings	20 00	
Warrant No. 7, December 6, 1883—C. M. Hobbs, expenses to Michigan meeting	15 75	
Warrant No. 8, January 12, 1884—T. V. Gifford, expenses to Ohio meeting	22 25	
Warrant No. 9, February 2, 1884—E. Y. Teas, expenses to M. V. meeting	25 85	
Warrant No. 10, February 11, 1884—C. M. Hobbs, part of salary	50 00	
Warrant No. 11, July 26, 1884—C. M. Hobbs, part of salary	115 00	
Warrant No. 12, October 17, 1884—S. Johnson, for M. V. Society reports	25 00	
Total		$421 28

C. M. HOBBS,
Secretary.

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TREASURER'S REPORT.

To the Indiana Horticultural Society:

RECEIPTS

From December 4, 1883, to October 31, 1884.

Balance on hand December 4, 1883	$752 15	
Membership fee	71 00	
Total		$823 15

DISBURSEMENTS

From December 4, 1883, to October 31, 1884.

Paid on orders from No. 1 to 12	$421 28	
Balance		$401 87

DANIEL COX,
Treasurer.

On motion, the recommendations of the President in his address were referred to a committee, to constitute which the chair appointed General A. Stone, W. H. Ragan and T. W. Kizer.

In like manner the reports of the Secretary and Treasurer were referred to the following committee: L. B. Custer, J. C. Ratliff, J. C. Stevens.

J. C. Ratliff then gave the following report from Purdue University:

To Indiana Horticultural Society:

As your representative of the Board of Tustees on Purdue University, it becomes my duty to again report to you the present condition and the future prospects of that institution.

The financial embarrassment spoken of in my last report still continues. The payment of one year's interest in advance on the endowment fund, has just barely been sufficient by the most rigid economy to bridge over till the first of the coming year. Notwithstanding the many pressing needs for money for necessary expenses, the University has made surprising headway. The policy of the new President, Dr. Smart, has been one of wisdom and of practical success as evidenced by his financial ability and management of the different departments of the college.

The Freshmen class now numbers sixty-six, being the largest of any college or university in the State except DePauw University. The Senior Preparatory class, numbers eighty-seven, which is more than twice as large as was expected by the trustees or faculty. The large increase of these two classes, shows the growing tendency of the University and the appreciation of this popular system of industrial education. In proportion to the increase of the number of students is the demand for room, apparatus and appliances. Hence, we need a new mechanics' shop that will be sufficient in size and equipment to accommodate fifty students, all working at the same time. We also need a tool house in which to keep tools and implements that are necessary in carrying on the practical experiments and

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tests in the departments of agriculture and horticulture. We also need additional buildings for the better accommodation of stock particularly for hogs and cattle.

An addition to the greenhouse of a propagating room has become a necessity, the heat required for starting plants is too great for the conservatory or the greenhouse erected three years ago. A nice front connecting both the present buildings, containing a suitable reception room which can also be used for an office, the walls running back twenty-five to thirty feet, far enough for a room of sufficient size for all purposes of propagation, is what is now under contemplation. Martin L. Pierce, Treasurer of the Board of the Trustees, with his usual liberality towards the University, has kindly offered to furnish the brick for this improvement, as he did for both the present greenhouses. In this connection it may be proper to say that the greenhouse management has been such as to come fully up to the expectations of the trustees. What it lacks of being self-sustaining is more than made up by it being a means of instruction.

The management of the experimental farm of a hundred and sixty acres as it now is, instead of ten acres as it formerly was, has been successful, notwithstanding the drought of the past summer. Experiments have been carried on to a greater extent, and on a much larger scale than heretofore.

To give an idea of the importance of this department of the University, there has been grown and the comparative results published (except for the present year) forty-five varieties of grasses, fifty varieties of potatoes, more than one hundred varieties of wheat and oats, thirty-five varieties of strawberries, twenty varieties of grapes and raspberries, seventeen varieties of sorghum and several varieties of corn. Some very interesting and valuable experiments with fertilizers have been made which are not yet completed. Farmers in different parts of the State were furnished with a fertilizer last fall by the University to make experiments on the growing crop of wheat, alternating between fertilized and unfertilized plats of half an acre each. The results of this experiment on different soils and the different circumstances of putting in the crop with the same amount and the same fertilizers, will no doubt be of great advantage to the farmers of the State, far more in the aggregate, than the State appropriations for the benefit of the University. The attention and care in making these and all other experiments in agriculture and horticulture will be such that no question can be raised in regard to their accuracy or the reliability of their results.

A new School of Pharmacy in connection with the University, was opened on the 24th of September last, under very encouraging circumstances. The faculty—which consists of Dr. J. H. Smart, as President; Robert B. Warder, A. M., B. S., Professor of Chemistry; John Hurty, M. D., Professor of Pharmacy; A. W. Brayton, M. S., M. D., Professor of Materia Medica and Toxicology; Charles R. Barns, A. M., Professor of Botany—are all able and competent men, who have the full confidence of the Board of Trustees. This new department is one of great importance and we feel no doubt of its ultimate success. These needs and improvements will depend on the liberality of the next General Assembly.

The University has now a Department of Horticulture and Entomology under the professorship of James Troop, late of Michigan University. This is a department this society is especially interested in. It is known by several of the older members present that efforts have been made by the Indiana Horticultural Society at different times, to induce the Legislature to pass an act for the appointment of a State Entomologist. As the Professor of Chemistry in Purdue Uuiversity is the State Chemist, why should not the Professor of Entomology in Purdue University be the State Entomologist?

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The following resolution, which originated in the Howard County Society, was introduced by T. V. Gifford:

Be it resolved by the State Horticultural Society of the State of Indiana in Convention Assembled: That the General Assembly of the State of Indiana be requested to enact laws upon the following subjects as herein set forth, viz:

1. That the County Horticultural Society in each county where one exists, or may exist, shall be entitled to, and receive one-third of the public funds of such county now paid to the Agricultural Society of such county.

2. That all persons and firms engaged in the sale of plants, fruit trees and ornamental trees in any county in this State, except the county in which such person or firm may grow such nursery stock, shall, before selling any such stock or offering to sell the same in any county in this State, except the county in which such person or firm may grow such stock, be required first to secure a license or permit from the Secretary of the Horticultural Society of such county, or in case no such society exists, then of the Auditor of such county, and by paying a reasonable fee for such certificate, and before such certificate shall be issued by such Secretary or Auditor, such person or firm proposing to sell or offer to sell any nursery stock in said county, shall file with such Secretary or Auditor a statement showing the financial condition of such person or firm and of their intention to do business in said county. And before such certificate shall issue to the agent of any such person or firm such agent shall file with such Secretary or Auditor, a warrant of his appointment as such agent to be issued such agent, by such person or firm showing the authority of such agent to represent such firm or person in such county.

By consent it was referred to the Committee on the President's address.

Prof. J. B. DeMott. In our county we have trouble to get the funds intended for such purposes. I wish to add an amendment, that where there is no Agricultural Society the Horticultural Society may receive the funds.

I think I never listened to an address with more valuable suggestions in it than were in our President's address. I am especially interested in what he said about our representation at New Orleans. I hope it may be seen to in time, that we may be well represented.

J. C. Ratliff. In reference to Prof. DeMott's amendment, I believe there is a provision for it. We succeed in getting the funds in our county. But if such an amendment will benefit other counties I have no objection.

President. The way we do in Marion county, and the way they do in Wayne, is to call our society the Agricultural and Horticultural Society, and it is appropriate to do so, for we discuss subjects belonging to each. Still it will do no harm to have the amendment.

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A question box having been spoken of, Mr. Commons volunteered to procure one, making a remark about stuffing the ballot box.

Secretary. I wish to say that we want that box stuffed after it is brought here.

President. You will not be allowed only one vote. You can vote as often as you want. In the absence of the box we might have some questions, which no doubt some of you are ready to ask. Dr. Furnas is just boiling over to answer questions, but he will not answer them unless you ask them.

D. Cox. I suggest that we take up the subject of funds. We know our funds are low, and if we do not consider the subject we will not get any money.

President. I think that is all right, but it is referred to a committee.

Dr. A. Furnas. I know something of the difficulty in getting appropriation bills through. I have had some experience in it. Unless this society comes up as the voice of one man we will not get a cent. Those who have been delegates to the Illinois society have seen that they have money. We are cut down to a very small report, while they come up with a voluminous book. I believe Indiana has a right to come up with as good a report. I hope all here will talk the subject up to their Representatives. We ought to have a sum left at our disposal. We ought to get our printing done as they do in Illinois. I think we could get it done better and cheaper.

President. The remarks of the Doctor are proper and important. He knows something of the difficulty of getting appropriations through. I thought perhaps as our demands would go with the rest, we would get an appropriation if they did.

Dr. A. Furnas. Not by any means. These are divided up and we are referred to the specific appropriation. We ought to be in the general appropriation, We ought to have a continuous one. In Illinois they have some $2,000. We only have $400. There they demand the funds. They make themselves felt. If we do not ask anything we will not get anything.

J. C. Stevens. I think the the Doctor's remarks are in place. When our men are on the eve of election they are very accommodating, but when elected they forget us. If we do not ask, nay, demand it, we will not get anything. If we demand it rightly we will do away with this way of coming up every year

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and asking for an appropriation. If we will put on the whole armor we can be felt. We must make our Representatives know they are our servants and that we have a right to demand something.

J. C. Ratliff. I don't think there is a member that would not approve what has been said, and we favor a liberal appropriation. It occurs to me it would perhaps be best to appoint two or three men to engineer this thing through. It is well enough to work on our Representatives but it seems to me we would stand a better chance if we had two or more of the most prominent members to engineer this and hold on till we get the blessing.

President. There is a committee to report on this subject, so we will not take definite action now. I have had some experience for a few years, and I will mention one thing. When our Representatives see our financial standing, they will want to know what we want with an appropriation. We have $800 on hand. I do not know but we would do better not to have so much on hands. I think Mr. Stevens' idea of working on our Representatives a good one.

T. V. Gifford. I can't but remember the different appearance of this meeting and the one I attended in Ohio, and this subject of money is one of the main things. I wish to refer to a remark of Mr. Stevens. If we could go to our Representatives and speak in the authority of the Society, it might have more effect. I have talked with our Representative-elect, Judge Linsday, and he was in sympathy with anything which was to the interest of Horticulture. I think you can rely upon him.

President. I see one ballot has been deposited. What is the condition of orchards and fruit lots in your respective neighborhoods?

J. C. Stevens. Orchards in our county were nearly all killed a few years ago. What went through the hard winter and hot summer look promising. Small fruits in my neighborhood look as fine as I ever saw.

Hiram Gregg. We suffered from the frost of 1881. A great deal of the trouble was not the severe cold, but the condition in which the cold caught the trees. I have discovered that where the soil was dry the trees did not suffer as much as where it was wet and the trees stimulated to later growth. In wet places what few trees are left are not healthy. I think of

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many varieties the trees are failing every year since. I think we will have to have new varieties. Except on what are called iron-clads (which were mature before the cold weather), we only had about one-fourth of a crop, and that was inferior. Many trees which were young were not damaged and produced good fruit. Small fruit was a good crop. Currants did not bear well. Many varieties of pears did well. (Some one asked what his iron-clads were.) White Juneating is one. It is an early apple. I never saw a bud of it affected. Then there is the Kirkbridge White, Blake, Steel's Winter Red, Grindstone, and Black Vandiver. The last one named is a very solid apple, not as large as the old Vandiver. It is about the color of the Red Sweet Pippin. I could not recommend the apple, but it is a vigorous tree and a good bearer. Many of our leading varieties, such as Rambo and Maiden Blush, were just swept away, while those iron-clads stood well.

G. Cowing. The prospect for orchards in our county is not very good. Some young orchards are very thrifty and promising. Pears produced no fruit scarcely. Most of the apples were not perfect, and are not keeping well. Grapes were a very fine crop; I never had better. We had a good crop of strawberries; I never saw plants more promising. Blackberries were not more than half a crop; half or more dried up on the briars.

Dr. T. V. Gifford made a report as a delegate to the Ohio Society:

From our meeting of last year I went direct to the city of Akron, where the Seventeenth Annual Meeting of the Ohio State Society held its sessions.

In the forenoon of the 12th, a very fair assemblage gathered informally. Fruits and vegetables were placed on tables. Friendly greetings and memberships renewed, and preparations were made for opening the business meeting.

The meeting was formally opened at 2 P. M., President N. Ohmer in the chair, who made a few remarks congratulating the members on the prospect of a profitable meeting, and called on Rev. T. E. Monroe, who invoked the divine blessing on the proceedings of the society.

The President announced the business committee, and proceeded at once to active business.

Ad interim reports, which correspond to our Vice President's reports, were first called for.

G. H. Miller, from Southeastern Ohio, made first report, showing the fruit crop to be short and unprofitable, excepting berries, which yielded well and brought good prices. This report mentioned a great increase in peach culture in that locality, and gave the Williams' cling as giving the best results.

Grapes giving best results were the Worden, Cynthiana, Delaware, Heath and Lady. This report spoke of an increased interest in ornamental horticulture.

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Following this were many other local reports, which were full and interesting, showing that the State was pretty well represented. The general information given in these reports shows a general failure in the larger fruits. In a few localities bordering the lakes and rivers there was a fair crop of apples and peaches. The berry crop generally good, but much better in some localities than in others.

Reports showed a great interest in potato culture, with abundant success this year.

Varieties of strawberries put forward in the reports were Crescent, Cumberland Triumph, Wilson, Manchester, James Vick, Jersey Queen, Winsor Chief, Sharpless.

The Gregg and Cuthbert raspberry led out in nearly all of the reports. The Sonheagan and Hansel were spoken of as giving good promise. The Mammoth Cluster and Doolittle are still cultivated in some localities.

The Snyder, Taylor and Kittatinna blackberries are the main ones grown.

Cherries and plums almost a failure in most localities.

Currants and gooseberries, as in our State, seem to have been almost lost sight of; they were occasionally mentioned. The Mulberry got a small mention, but the Russian, as a fruit producer, was condemned generally.

Mr. George W. Campbell, of Delaware, Ohio, the Society's most efficient Secretary, and who seemed to be the recognized authority on the grape, read a very elaborate and complete report on the fruit in his locality, in which he discussed grape culture pretty thoroughly. He mentioned favorably the Pocklington, Prentiss, Antoinette, Lady Washington, Eldorado, Jefferson, Vergennes, Early Victor, the Duchess and the Highland. He spoke also of some varieties originated in Missouri that have given good promise, among which are the Amber, Faith, Missouri, Riessling, Pearl, Green's Golden, and Black Taylor. The Noah originated in Illinois. The Empire State and the Niagara was also spoken of favorably by Mr. Campbell.

In the discussion that followed, query was made if there were any varieties that were not subject to rot. He replied that there were greater tendencies to rot in some varieties than in others, and also difference in localities. The Delaware had never rotted for him, and he had grown it for thirty years. He had heard of its rotting in other places. He believed it to be more nearly exempt from rot than any other. He could not, however, give much information of value in reference to grape rot. He regarded it as a diseased condition of the fruit, caused by parasitical fungoid growth. Further questions elicited the remark from Mr. Campbell that he did not think grapes were subject to more failures than other fruits. He would plant Concord, Delaware, Worden, Vergennes, Early Victor, and many other kinds with as much confidence of success as he would expect from apples or pears, and he could get results so much quicker.

Following these reports the President read his annual address, which was concise and replete with interesting matter on horticultural subjects, showing Mr. Ohmer to be earnestly and efficiently filling the chair. He urged the necessity of more work, looking to the organization of more local societies, and to increasing the general interest in horticulture. He referred to Michigan, which has twenty-three local societies, and seven hundred and twenty-five members. He urged more free and full discussions on the various subjects presented in the meeting. He referred to their former custom of holding mid-summer meetings, and urged the society to return to that custom. He said the object of such meetings should be to visit in body fruit farms and gardens, and other things of interest to horticulturists, hold sessions in the evening, and discuss what had been seen during the day.

At the close of his address the President politely introduced your delegate to the meeting, who responded briefly in presenting the condition of horticulture in Indiana.

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A paper was read by M. C. Read, of Hudson, on birds, giving in careful classification the names of birds in their relation to to their benefit to fruit growers in insect eating habits, comprehending a great amount of useful knowledge, which elicited an interesting discussion.

J. M. Newton, chairman of committee appointed for that purpose, read an interesting paper in memory of the late John A. Warder, in which he spoke feelingly of his life and labors.

An elaborate paper by L. B. Pearce, giving an account of his trip and observations at the meeting of the American Pomological Society, in Philadelphia, elicited good attention.

Following were a number of papers:

Strawberries, by W. W. Farnsworth.

"Benefit of Horticultural Societies to the City Resident."

"Lawns and Flower Beds."

"Lawns and Grass Plots."

"Address of Welcome," by Dr. M. Jewett, President of the Summit County Society, and response by President Ohmer.

Many full and interesting reports from county societies.

"The Potato and its Culture," by Frank Ford, who seemed to be the champion potato man, and who had a great number of varieties on exhibition, many of his own originating. A very comprehensive paper on the kinds and their cultivation, manner of planting, etc. He recommends the planting in rows three feet apart, and twelve inches apart in the rows. He gave a complete tabulated list of a great number of kinds, the manner of culture, time of ripening and their productiveness. This was one of the most practical and interesting papers of the meeting.

The reports from different parts of the State showed quite an interest in improved potato culture.

I would not neglect to mention the part taken by the women in the meetings, for it did me much good to see and hear them doing their part so nobly.

A paper by Miss Emily Walcott, on "Women as Farmers," was listened to with marked attention.

A paper that took the lead as a thing of beauty and literary perfection was read by Mrs. Matthew Crawford, of Cuyahoga Falls, entitled, "Good Looking People."

"Apples and Apple Trees," by G. W. Dean, of Kent, was a paper full of information and good practical common sense.

W. J. Chamberlain, Secretary of the State Board of Agriculture, read a paper of an hour's length. Subject: "Influence of Occupation upon Character," especially the educational influence of horticulture. This was the master paper of the meeting, and as a document for the youth of the country to read, would be invaluable.

Following this was a discussion on the establishing of legal weights for the sale of fruits, and a committee was appointed to bring the subject before the Legislature of Ohio.

Discussion on the use of poisons in horticulture, in which Paris Green and carbolic acid were highly recommended for the destruction of insects and their larva upon fruits and vegetables.

An extensive paper on "Grape Culture," by J. H. Fryon, of Willoughby, Ohio.

The proceedings of the Mississippi Valley Meeting were interestingly reported by Mr. Ohmer.

The meeting of the Biennial Pomological Society in Philadelphia, was reported by George W. Campbell, in a very comprehensive manner.

A very complete fruit list was made out and accepted by the Society.

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The meeting throughout was characterized by energy and a fair deliberation. Many things combined to make the meeting one of interest and profit, among which was some splendid music, rendered by the "German Glee Club," of Akron.

On the second day of the meeting the Summit County Society dined the delegates sumptuously in a capacious dining hall belonging to Phœnix Hall, in which the meetings were held. The local society furnished carriages and drove the delegates about the city, by which they visited many interesting manufactories. On this drive I saw for the first time the practical beauty of doing away with fences.

The meeting throughout was a great pleasure and profit to me, and the courtesy shown me made me feel much at home.

T. V. GIFFORD.

The meeting then adjourned till 7 P. M.

Tuesday Evening Session.

The Society was called to order by President Johnson, at 7 o'clock, after which the audience, standing, was led in prayer by the Rev. I. N. Watt.

Then Dr. Allen Furnas spoke on

"THE PROPAGATION OF SEEDS AND PLANTS."

Friend President and My Good Friends:

I never present myself before an audience like this, with an assignment, without more or less embarrassment; not that which comes from any peculiar or innate modesty, but from the fact that the subject is so wide, and which, if I do ever so well, I must leave unfinished. It is a subject we may study for a lifetime, and still learn. Yet we become more apt by study and practice. If I introduce a new thought I will have achieved what I would like. My remarks may not be connected, but I will have laid the subject open and you can take it up.

Once two persons were traveling afoot. One was learned, the other unlearned. The scientific man was saying that we should go to the bottom of things. These two men came to a creek. The unlearned one said to the philosopher, "You will be drowned here; you go to the bottom of things." Now you may not be afraid of me being drowned. If I were able I would not attempt to explain this process of the seed germination, but I will present a few leading thoughts in managing them. I will at once go to my work. I will first speak of seed growing. There are some sorts of seeds which demand much attention, as, for instance, locust seeds. They must be scalded. You may pour scalding water on them, and it is all the better. If you put them in the ground without scalding you will never see them come up, but with it they will come reasonably soon. Another which requires special attention is the cobea scandens. It must be put edge down. This is a nice point. It is true, if you put a grain of corn in the ground it will grow, but other seeds do not succeed so well. I remember planting some persimmon seed twenty years ago, without any previous preparation, and I do not know but they are coming up yet. If you will scald the seed, or let them freeze and thaw, they will not be so long

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coming up. Peach seed requires special treatment. Peach growers know they must not be put in a cellar and kept warm. You go to a nursery and you will find them scattered in a bed so they can freeze and thaw as much as possible. If you will imitate nature, you will have the best means of propagation. Some one may ask, "Does nature have hot water?" No, but it does the same work with frost. I know once in a while we find sorghum seed planted without previous preparation. The first sorghum is fox-tail; perhaps the next sorghum will be fox-tail, and it may be that nothing else but fox-tail will come. But if, when the weather is warm and nice, you will scald the seed and just cover them with dirt a little, they will come in three or four days. It is necessary to know how to handle seeds, how and when to plant, and how to treat them. Perhaps many of you would like to plant a few apple seeds. I am glad most of you are interested in experimenting, even if you could buy better things sometimes. You can go to a cider-mill and get out seed which have laid out all winter, and they will grow. Nurserymen keep their seed cool and a trifle damp. Put them in a box out of doors and cover with a larger box, so they may be cool and not get too wet. If you allow them to get to looking "cheesy," they will not grow very well. If they look bright you may be assured they will grow if treated well. Avoid seeds more than a year old. Not but that if treated right they will grow, but for fear they have been too dry. Pear seeds are treated similarly by some.

I will speak now of the propagation of bulbs and plants. The preparation of the ground is the first thing. Do not just put them in anywhere, but be sure to make a decent bed; make it with some taste. If moles are bad board it down fifteen or eighteen inches. Then put your bulbs down three inches deep in good soil. Let them freeze and stay so till the middle of March. When it thaws out the bulb will be a mass of roots, though it was put down dry. Thomas Mehan, of Philadelphia, first gave me this idea. Nurserymen know that if you take up a lot of apple trees and heel them in, when it thaws out it is not uncommon to see tender roots four inches long. Make a cutting of grape wood, or something of that kind, and put it down in the Fall; invert them and leave them during the winter, and they will callous and be ready to root. In planting, it is not to be forgotten that this process is going on, though it is frozen. These things are singular. You must be acquainted with the nature of the bulbs. You must know that a tulip can not be handled in the spring. I gave a Dicentra Spectabilis to a lady. It grew nicely awhile, and then she threw it away thinking it was dead. It was just resting. Any man who is used to making mortar knows by the looks of it whether it is good, and he can't tell any one else how to judge of it. Many things in regard to plants you learn in the same way. There is a young man here, and he is not far from this stage, who can bud almost as fast as a telegrapher ticks his instrument. He could bud almost if he was blind. This kind of work you get used to.

When it comes to the propagation of plants, we have a variety of work. A life-time may be spent in it. My daughter had a colleague who was sick. She made her a bouquet of flowers. My daughter called a few weeks after and every twig was a living plant. She was making them succeed in unfavorable circumstances. Quite a number of our horiticulturists will go to a nursery and buy grape vines, when they might raise them as well as not. Many men would almost agree on a penalty to make a plant for every bud on thisvine [holding one in his hand.] When I was starting my greenhouse, we were just starting with the Delaware and Iona grapes. We wanted every eye to tell. We made the cuttings not more than one and a half inches long, and put them down so the sun could strike the bud. If you will watch carefully cuttings prepared in this way, you will soon see them starting. It is not much trouble to get the cuttings to put out leaves, but more to

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get them to root. If we are working a long cutting, we would take it about ten inches with three buds on it. Put these in the ground slanting so the sun can reach them. Grape vines may be started in this way. If your ground will heave them out, you can nail them down by laying a board on them. Nine-tenths of them will grow. If you do not want to put them in this way, if you will put them in, in bunches, inverted, and heel in the ground, they will callous and in the spring they will grow. In inverting the sap flows up and more completely makes a callous, as when I cut my finger nature sets to work to heal it.

In grafting, these nurserymen will take a bit of root two or three inches long, cut a slope on it, put the knife on the slope and raise a tongue, make a scion in like manner and put them together. I like to have my cut an inch long. Then we have a reel of cotton thread, well waxed, and wrap it. It is done and ready to grow. They go to grafting about the holidays. The grafts must be packed away in a cellar and kept so they will not start to growing. If you want to graft roses, cut the roots one and a half inches and tie them to the tops. (Roses are budded most altogether now.) The top sometimes dies and the root grows, and you have the wild stock. You think you have been deceived, but the nurseryman gave you a good plant, but the top died. The best way to grow roses is to grow them on their own roots. Many who can not understand how to bud or graft, can layer plants. Lay a plant down in a trench three inches deep, and each bud will send up a shoot, and put down roots. Then you can cut the stem on either side the bud with a spade. Sometimes I have not found roots at every place.

Once a lady went into a greenhouse and wanted some plants; she did not know what she wanted, but just wanted some to be like other people; I know with such a lady what would become of them; she would not take care of them.

I was in Washington once and was introduced to Mr. Taylor, who runs the propagating department. It seemed he knew the history and relations of all the plants. As we were going along I saw some beets, or they looked like beets. "You have failures too, have you?" I said. He wanted to know what I meant; I thought they were failures, but they were bulbs which were taking their required rest. I do not know but I have talked long enough in my uninteresting way. If any one has a question I will try to answer it or get some one else to.

Some plants will grow on a stick of wood or on a cork. If you want to propagate an oleander, take a quinine bottle and put a cutting in it and see that it has plenty of water, and you can get a plant. Take a cactus and it will not work that way. It must be put up to get dry for a couple of weeks. So this subject affords an endless amount of amusement. It is not so much the amount of plants, but the success and health of them. I would rather have half a dozen good healthy plants than fifty sickly one. You want to know how to take care of them. Do not let them go two or three days without water. They want to have plenty of light. When you have nice healthy plants they are a thing of beauty and virtually a joy forever.

Secretary. In regard to inverting cuttings, another reason may be given. By so doing we retard the growth of the buds and develop the callous. The tops are down lower and are cooler and their growth is retarded, while the other end of the cuttings is nearer the surface receiving the sun's warm rays which stimulate the circulation and induce the callousing process.

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President. There was a question suggested to my mind, whether we could start Delaware cuttings by putting them down inverted so they will callous. I never could grow Delaware and Iona from cuttings. I could grow them better by layering them.

Secretary. James Little, of Cartersburg, told me he had grown Delaware successfully from cutting, by placing them in the ground at quite an angle, throwing the base of the cutting near the surface of the ground and placing a board in a slanting position over the tops to keep them cool and to reflect the sun's rays on the base of the cuttings, thus, inducing them to root.

Prof. J. Troop, of Purdue University, was then introduced, and spoke as follows:

A few days ago Dr. Riley came out in the *Farmer* with an article on my subject, and has stolen my thunder. So I have had to make some changes.

ECONOMIC ENTOMOLOGY—PAST AND PRESENT.

There is probably no other branch of natural history more intimately connected with horticulture, in its various departments, than Entomology; and yet it is only about a century since this science, with many others, was in its infancy, and a man engaged in its study was looked upon as a fit subject for ridicule. But happily a century brings great changes, for good in many things, and so these studies of nature are beginning to be looked upon with some degree of respectability.

In tracing the history of this science we have to go back nearly 400 years B. C. Here we find in the writings of that wise philosopher and naturalist, Aristotle, reference made to the classification of insects. Indeed, so complete and systematic were his divisions and subdivisions into orders and families, that some of them remain unchanged to the present day.

Here then, we may say, the study of Entomology began, and the principles set forth then, although in a rudimentary form, have been extended and widened until the science, as we may call it to-day, is able to stand beside and claim an equality with any of the natural sciences.

Virgil, in the first century B. C., gives us, in his beautiful poems, some of the same ideas advanced by Aristotle, with a few erroneous ones of his own, and in the first century A. D., Pliny the elder gave to the world some of his startling ideas, many of which were as false as they were startling. Like many other old fossils, they are valuable only as curiosities.

After this we are left in the dark for more than 1,500 years, until after the revival of learning, when in the middle of the seventeenth century, Swammerdam published his work in which the transformations of the internal anatomy of insects were explained and described. Following this was Reaumur's work describing the habits and manners of insects.

From 1735–'70 appeared the works of that great Swedish naturalist, Linnæus. His works are specially valuable in setting forth the natural method of classification, both in entomology and botany.

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The apparent aim of all of these men was to work out the points of difference and resemblance among insects whereby one common law of classification could be established, and they succeeded admirably.

Within the last fifty years entomology and horticulture have made rapid progress in America, the advancement of one seeming to stimulate the growth of the other. While Mr. Downing was writing his great work entitled "Fruits and Fruit Trees of America," so familiar to us all, Dr. Harris, of Massachusetts, was at work on his greatest work entitled "Insects Injurious to Vegetation," which was published in 1841, and to which we are greatly indebted for our knowledge of economic entomology. This work is thoroughly scientific, and yet it is written in such plain language that it can be easily read and understood by every one. Some one has said that this work alone has saved millions of dollars to this country. Like many other scientists, Dr. Harris seemed to work for the love of it, knowing full well the benefit which would result to mankind Hear what he says:

"Believing that the aid of science tends greatly to improve the condition of any people engaged in agriculture and horticulture, and that these pursuits form the basis of our prosperity and are the safeguards of our liberty and independence, I have felt it to be my duty, in treating this subject, to endeavor to make it useful and acceptable to those persons whose honorable employment is the cultivation of the soil."

What could be more practical and in harmony with the everyday teachings of life? I have dwelt at considerable length upon the merits of this work, because I think the character of both the work and the man will warrant it, and the horticulturist who has a copy of this work in his library has a good foundation on which to build.

About the time of Dr. Harris' death the people of New York, with a realizing sense of the benefits to be derived, established the office of State Entomologist, with Dr. Asa Fitch at its head. During the seventeen years of his labors as State Entomologist, it is said that $50,000 were saved annually to the people of the State by his investigations into the habits and life histories of their most noxious insects, and in seeking out means of controlling their ravages. His reports are eagerly sought after by every intelligent entomologist.

It will be seen that until within the last twenty-five years all investigations in this line were confined to the Eastern States. This may be accounted for from the fact of these States being the first to be brought under the civilizing influences of the white man. And for some reason these little pests are very fond of living in a civilized community. And so, as this civilization pressed its way westward, disturbing the balance of nature that had hitherto existed and destroying the natural food of the insects, we find them increasing so rapidly that the people of Illinois were moved to follow the example set by New York, and create the office of State Entomologist. The men who were successively called to fill this position have done a grand work for the West. Their labors, both in the field and laboratory, in describing the habits and life history of some of the worst insect enemies with which we have to deal, have been of untold value to the farmer and fruit grower of the West. Drs. Walsh and Le Barron are gone; but their works will ever remain as monuments to their ability as scientists.

Of those now living we first mention the name of Dr. Thomas, who succeeded Dr. Le Barron as State Entomologist of Illinois, where he remained until a wider field opened to his view, when he gave place to the present incumbent, Professor Forbs, whose ability in this direction no one here will dispute.

Probably there is no one man who is doing so effective work in this direction at the present day as Dr. Riley, who stands at the head of economic entomology in

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this country, if not in the whole world. His discoveries in regard to the habits of the grape phylloxera alone have saved millions of dollars to the horticulturists of America and Europe.

We are greatly indebted to to Dr. Packard, of Mass., Lintner, of New York, Cook, of Michigan, and Saunders, of Ontario, for much of our knowledge of our noxious insects, and of the actions and uses of various insecticides. For example, these men have proved that Pyrethrun is a sure and safe remedy for the cabbage worm, whereas Paris green is very effectual, but not safe on account of its insoluble nature. On the other hand, they have demonstrated that the Paris green is a safe and effectual remedy for the coddling moth, whereas the Pyrethrun is safe but not always effectual, as its poisonous properties are readily given off when exposed to the air.

And so we might enumerate a long list of similar examples which may seem common place to us now, but which nevertheless are saving annually thousands of dollars to the horticulturists of this State.

Having discussed briefly the benefits which we have already received from this source, let us see if there is not room for still greater good to be accomplished in this direction. And in order to do this we must have more workers in the field. The men whom I have already mentioned are doing a noble work for horticulture and agriculture, but when we realize that one can count on his fingers all the men who are giving their whole time to this work, and when we note the rapid progress of horticulture in its various branches year by year, and the consequent increase of the noxious insects; both by natural increase and importations with foreign fruits, etc., we can readily see that something must be done in order to prevent this foe getting the mastery.

Our Agricultural colleges are beginning to do a grand work, in this direction, in sending out men thoroughly imbued with the habits of investigation and observation. Men who are trained from the very beginning of their college course to investigate and search out the hidden truths which are revealed only to those who patiently and diligently seek for them. It is to such men as these that we must look for the future progress of the industrial sciences of the country; for those higher and broader principles which underlie the foundations of successful agriculture and horticulture. For, as our knowledge of these sciences increases, so must our knowledge of their natural enemies increase, else we shall soon find that all our labors in the field and orchard are fruitless.

Many of these insect enemies are very minute, requiring the skilled eye, and even the aid of the microscope, to see them. Still, that old law, "In union there is strength," holds good here, and their combined forces of millions upon millions renders them a formidable foe indeed. If they were confined to a single locality, it would not be so bad, but we find them everywhere; not only in our orchards and vineyards, but in our grain fields, in our vegetable gardens, on our shade trees, and some with a more delicate and refined appetite can only be satisfied with our choicest roses or the delicious strawberry. In fact there is no plant or animal that is entirely free from their attacks. About ten years ago Dr. Packard said: "I could enumerate upwards of fifty species of insects which prey upon cereals and grasses, and as many which infest our field crops. Some thirty well-known species ravage our garden vegetables. There are nearly fifty species which attack the grapevine, and their number is rapidly increasing. About seventy-five species make their annual onset upon the apple tree, and nearly as many may be found upon the plum, pear, peach, and cherry."

These figures are much too small at the present day, for, according to Professor

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Lintner, more than one hundred and sixty species are now known to work upon the apple tree—more than double the number given ten years ago. In fact, fifty years ago only about 70,000 species of insects were described, while to-day the habits and natural history of more than 600,000 species have received names and the official seal of the entomologist.

So much for the number of species. Now let us look for a moment at the number of individuals of a single species that may infest a single tree during the season; and for this purpose let us take one of the plant lice.

In 1856, Dr. Fitch, of New York, gave an account of the number of these lice upon his cherry trees. The trees in question were about ten feet high. He ascertained that each tree contained at least 12,000,000 of these lice. Now, it has been found by actual experiment that a single plant louse may be the progenitor of nearly 6,000,000,000 of descendants in a single year. Now, let us assume that three-fourths of the number found upon Dr. Fitch's cherry tree are females capable of producing young; then we shall have $9,000,000 \times 6,000,000,000 = 54,000,000,000,000,000$ as the product of a single year. This, of course, is only one of the possibilities among plant lice. The loss resulting from such an enormous increase must necessarily be great, and, indeed, reports from different States show that the loss resulting from a single species of insect amounts to millions of dollars in a single year.

We see, then, the great necessity for the people to have a better understanding of the life-history and the habits of these little pests; for, as it is necessary for the physician to understand the habits of his patients, so it becomes necessary for us to understand the habits and peculiarities of these insects before we can prescribe means for checking their ravages.

How will we do this? Certainly the best and the only way to do it effectually is by securing the personal observations and careful experiments of a scientific entomologist right here in our own State. We can not do it ourselves, for we have other work that requires our attention. Neither can we trust wholly to the work done in other States, for many of our most injurious insects may not be known in Michigan or New York, or even in Illinois. We must fight our own battles right here on our own ground. Would it not be well, then, to consult our own interests in this matter, and, while other branches of science and art are claiming their share of the public money, and rightfully too, to see to it that one of the most important industries in the State is not neglected, and insist upon it that we have a State Entomologist, who shall give his entire time and attention to this matter?

DISCUSSION OF THE PAPER.

Prof. DeMott. I agree with what the paper says about our having an entomologist. One reason we are so apt to try many things which will not destroy insects is because we have no entomologist whose business it is to enlighten us on this subject. Many persons are giving remedies which are of no value. Much of this might be saved. If an entomologist should do as one did in giving us an English sparrow, he might do as much harm as good. So terrible has the pest become in the East that, I learned in one place, they agreed to give the boys

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all the powder and shot they would use in killing them. I agree with the paper, and think we ought to have an entomologist.

President. This audience may not be aware that all this fight against the sparrow is against your chairman. I am a friend to the sparrow, and expect to be until I see some reason to change. I have seen but one thing against it, that is his filthiness. I never saw him attack other birds. I have more robins than I want; they do the harm. I have watched this thing with interest, because there is so much opposition to the sparrow. If he is really such a nuisance I want to know it. At the last meeting of our society Mr. Kingsbury said he would state for my benefit that he had learned from a lady that the sparrow had destroyed all the worms on her cabbage. It is the only bird that does this with me. I would like to have this subject of an entomologist discussed.

Prof. Troop then showed some hand bellows, one for spraying a powder, the other for spraying a solution on plants.

The question box was then opened. A question was read in regard to the profits of certain fruits.

G. Cowing. It is hard to make a definite answer. We do not have big profits any more. We are down to the hard pan. Last year was very discouraging to me.

Prof. DeMott. J. H. Priest, of Greencastle, went into the raspberry business three years ago. He planted nine acres. People made fun of him for going into the business so extensively. The first year he sold $900 worth, the second $1,200, and the third $2,300. There certainly is money in it. He has an upland clay soil.

G. Cowing. His land is suited to it and ours is not. For twenty-five years we have grown small fruits, and our market is glutted. Not so with his there.

President. Off of one acre in Gregg I cleared $142.

J. C. Stevens. I think it is our duty to give both sides of the question. I think I know something about it, though I don't like to put up my judgment against others. When I commenced I put out three varieties, one hundred each. I thought I had enough. Last year I supplied twenty-seven bushels a day for several days. Other men thought if I could get that off of two acres, they could get as good a crop and have five acres. They failed. I think you must grow with the business.

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You must build up a market. Some think because Mr. Ohmer can run fifteen or eighteen acres as he does, they can run an eighty acre farm that way. I think they would better go at it by degrees.

Marion Harter. Two years ago I thought I would raise enough strawberries for home use. We used five bushels and sold nearly fifty.

C. W. Osborn. I came to learn, but I will state what Silas Huddleston did. He said his raspberries produced $300 worth an acre off of plants which had been planted fifteen years. I would like to know what success people in this place have had with raspberries.

Dr. A. Furnas. My observation has been that if I can sell $100 worth of strawberries to the acre I clear $50. That may not always be correct. I have not shipped much, but I find it takes half to produce and dispose of the fruit. Six to eight years is as long as raspberries should stand, and two good crops of strawberries is all you can expect, and then you will lose a crop in changing. It is best to rotate with other crops. My observation is that if you have a reasonable crop it will take half to pay expenses.

G. Cowing. Last year I shipped a good deal. I got eight and nine dollars a stand (two bushels) for strawberries. This year I got six dollars from the same man. He said it was the best price paid.

President. Is there danger of overdoing the small fruit business?

Several answered yes. Some thought it already overdone in places.

Dr. A. Furnas. Take Mr. Cowing's figures, three dollars per bushel. Give half for trouble. Take seventy bushels to the acre. It will clear $105. Try potatoes, sorghum, if you please, and where will you do better.

James Sanders. I do not look on this quite so discouragingly, though I have had some bad experience. I had two acres of strawberries. Last year I received $400, this year $300. My expense, as nearly as I could tell, was $100. Picking cost one cent per quart. I think I made more profit than I could with any thing else. There is difference in varieties. I can't do anything with Wilson. With raspberries I make more than four times as much off of Cuthbert than Gregg.

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President. Do your red raspberries bring better price?

James Sanders. They do. I can't get to market with them. People come after them.

President. That is my experience.

Dr. A. Furnas. That is mine.

Secretary. I learned from commission men in Indianapolis this season that they think red raspberries are being overdone.

G. Cowing. Red raspberries are so perishable, is one objection to them. They do not sell in competition with black ones.

Secretary. I hope no one will be too much discouraged by what has been said. I think enough has been said about profits to encourage some to go ahead. It is certainly sufficient encouragement for people to grow small fruits for their own use. There are still so many who do not have them.

T. V. Gifford. I think the experience of small fruit growers in Howard county may encourage some. When I went to Kokomo twelve years ago, there was some small fruit business done there, but I was advised not to go into it, for it was overdone. But to-day it is carried on much more extensively and still they say it is being overdone. If you produce nice berries and let people know you have nice ones, there is a rush for them.

J. C. Stevens. I do not want to discourage any one. I would advise every man who has a rod of ground to plant it in fruit. People should not rush into it too much when they don't know much about it. My soil will not produce red raspberries, while it will make good black caps. There is a great difference in land in different places.

Marion Harter. I see some are discouraging the small fruit business. I will say how it has been with me. After I had been to market a few times, the people would come to me and say they wanted a half bushel or so of my berries. I could sell because my fruit was fresh. Berries that are shipped in here are often no account.

Dr. Furnas asked several what they got for berries, and found ten cents per quart for strawberries about the average, and he spoke as follows: I just know on my farm I can raise strawberries and sell at ten cents, and pay ten per cent. commission, and make ten times more than on my wheat. I remember once in my sale-yard a man came after trees. I wanted to know how many he wanted. He said he wanted a good many, he

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was going into the business. He wanted a hundred or two hundred. While we were talking another man came and wanted one hundred or one hundred and fifty. The first man was scared. He thought they would glut the market. He went away with seventy-five trees. This year strawberries were cheap, but present patches will soon be gone. It will right itself. If you will calculate on the prices it will work out better at ten cents than your wheat. There is plenty of chance yet. We have not reached the climax. Many children (and it grieves my heart) do not taste strawberries.

G. Cowing. I don't want people to think I am discouraging fruit growing, but if everybody would go into it as we did into wheat it would not be very profitable.

W. H. Ragan was then asked the question, "What is the cause of the deterioration of fruit in this State?"

That is a hard nut to crack. I believe there is something going on which we might call deterioration. I am inclined to believe that much is due to our lack of information on entomology. This and changes which have been going on in our climate are bringing this about slowly. I don't think anybody has reached definite conclusions. I have a brother-in-law in this State who made two trips to Kansas. He brought back apples each time, showing such wonderful good fruit. I told him I had seen just such here. He was surprised. Sooner or later the same things we contend with will reach them. Of course there are certain exceptions where there are other influences. But answering briefly, it is due to the multiplication of insects and change of climate. On the subject just discussed, while I have nothing to say as to profits, I wish to say something about shipping. I happened to make a trip to West Tennessee last May, 500 miles from Chicago, their market. They have hundreds of acres of strawberries depending on a market 500 miles away. Humboldt, a little west of Jackson, is the center of that small fruit region in West Tennessee. They ship to Milan and reship to Chicago. As I came up, at Milan there was a large lot of cases of berries on the platform, and they threw them into the cars like bricks. I went to breakfast and when I came back they were still throwing them into the cars. The sun was very hot. I do not know how long they remained in the sun. They had all loaded but about fifty cases and the conductor came along and said they could not

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take any more. When we came up to Cairo, the same process was gone through again. It occurred to me I would prefer to have land at $1,000 per acre near a good market.

The Society then adjourned until 8:30 Wednesday morning.

Wednesday Morning.

The house was called to order at 9:15.

The Finance Committee made the following report which on motion was accepted.

Mr. President:

Your Committee on Finance beg leave to report that they have made a careful examination of the reports of the Secretary and Treasurer, and find them correct.

L. B. CUSTER,
JAS. C. RATLIFF,
JESSE C. STEVENS.

Gen. Stone made a report on behalf of committee on the President's address. On account of the absence of one or more members of the society, especially interested in this subject, it was laid on the table for the time being.

The President then appointed the following committees:

On Exhibits—Dr. A. Furnas, E. Y. Teas, C. W. Osborn.

On Final Resolutions—J. C. Ratliff, J. C. Stevens, Mrs. H. V. Austin.

Then Prof. W. C. Latta, read the following paper:

EXPERIMENTS AT THE AGRICULTURAL COLLEGE—AN EXPERIMENT WITH COMMERCIAL FERTILIZERS AND POTATOES—RESULTS OF A FOUR-YEARS TEST AT PURDUE UNIVERSITY.

In 1881 the Agricultural Department of Purdue University began a series of experiments with various mineral and nitrogenous commercial fertilizers on potatoes. These experiments have now been carried on four years, a length of time sufficient to give pretty definite conclusions.

OBJECT OF THE EXPERIMENT.

The aim of the experiment was to determine the relative merits of different fertilizers, and especially to ascertain the form and quantity of nitrogen that would give the best results.

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PLAN OF EXPERIMENTS.

The experiment plats occupied an apparently very uniform piece of ground and were placed side by side, except the unfertilized two plats which were placed just opposite the two fertilized plats, 11 and 12, as by the accompanying diagram. The plats were of uniform size, one rod by five rods, with the long way north and south.

DIAGRAM OF PLATS.

South.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
					d				d				d				d		

North.

A broad but very shallow depression crosses this series of plats, running north and south, and extending from plat 8 to plat 18, with lowest point at plat 14, one and one-half feet below the general level.

CHARACTER OF THE SOIL.

The soil where the experiment was conducted is a dark, heavy loam, quite "sticky" when wet, but naturally well drained. The surface soil has considerable clay and organic matter, and but little sand. In general appearance and texture it closely resembles the prairie soil of the adjoining counties, though not so fertile as the latter.

Each fertilizer had its own plat which it occupied throughout the experiment. The fertilizers were applied, soon after planting, along the lines of the rows in which the potatoes had been drilled. The planting, cultivation and harvesting of the plats were the same in every respect. The table gives the kinds of fertilizers used, quantity applied per acre, average yield per acre, and the increase in yield per acre which is the difference between the average yield of each fertilized plat and the average of the two unmanured plats.

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Table Giving Fertilizers and Average Yield of Plats.

Number of Plat.	KINDS OF FERTILIZERS.	Pounds of Fertilizer per Acre.	Av. yield Bushels per Acre.	Average Increase Bush. per Acre.
1	Nitrate of soda	150	86.54	25.85
2	Superphosphate	300	120.40	59.71
3	Muriate of potash	150	81.45	20.76
4	Nitrate of soda 150 lbs., superphosphate, 300 lbs	450	107.73	47.04
5	Nitrate of soda 150 lbs., muriate of potash 150 lbs	300	77.68	16.99
6	Superphosphate 300 lbs., muriate of potash 150 lbs	450	94.06	33.37
7	Superphosphate 300 lbs., muriate of potash 150, nitrate of soda, ⅓ ration 150 lbs	600	115.19	54.50
8	Superphosphate 300 lbs., muriate of potash 150 lbs., nitrate of soda, ⅔ rations 300 lbs	750	120.78	60.09
9	Superphosphate 300 lbs., muriate of potash 150 lbs., nitrate of soda, full rations 450 lbs.	900	119.34	58.65
10	Superphosphate 300 lbs., muriale of potash 150 lbs., nitrate of soda, full ration	450	131.34	70.65
11	Superphosphate 300 lbs., muriate of potash 150 lbs., sulphate of ammonia, ⅓ ration 112½ lbs	562½	137.07	76.38
12	Superphosphate 300 lbs., muriate of potash 150 lbs., sulphate of ammonia, ⅔ ration 225 lbs	675	121.32	60.63
13	Superphosphate 300 lbs., muriate of potash 150 lbs., sulphate of ammonia, full ration 337½ lbs	787½	106.13	45.44
14	Superphosphate 300 lbs., muriate of potash 150 lbs	450	116.89	56.20
15	Superphosphate 300 lbs., muriate of potash 150 lbs., dried blood, ⅓ ration 225 lbs	675	104.09	43.40
16	Superphosphate 300 lbs., muriate of potash 150 lbs., dried blood, ⅔ ration 450 lbs	900	102.78	42.09
17	Superphosphate 300 lbs., muriate of potash 150 lbs., dried blood, full ration 675 lbs	1,125	92.76	32.07
18	Superphosphate 300 lbs., muriate of potash 150 lbs	450	88.51	27.82
19	No manure	000	60.08	....
20	No manure	000	61.31	....

The superphosphate contained 15 per cent. soluble and 16 per cent. total phosphoric acid; the nitrate of soda, sulphate of ammonia, and dried blood contained 16 per cent., 21 per cent. and 11 per cent. respectively of nitrogen; and there was 50 per cent. of potash in the muriate of potash. The plats received good but not high cultivation, the aim being to test the fertilizers under average farm conditions.

For convenience in studying the results obtained, we will group the plats with reference to the number and kinds of fertilizers used.

AVERAGE YIELD BY GROUPS.

		Yield Bushels.	Bushels Increase.
I	Average of plats 1, 2 and 3, which received one fertilizer	96.13	35.44
II	Average of plats 4, 5, 6, 10, 14 and 18, receiving two fertilizers.	102.70	42.01
III	Average of plats 7, 8, 9, 11, 12, 13, 15, 16 and 17, receiving three fertilizers.	113.28	52.59
IV	Average of plats receiving nitrogen	107.62	46.93
V	Average of plats receiving no nitrogen (except 19 and 20)	105.44	44.75
VI	Average of plats 7, 8 and 9, receiving nitrogen as nitrate of soda	118.44	57.75
VII	Average of plats 11, 12 and 13, receiving nitrogen as sulphate of ammonia	121.51	60.82
VIII	Average of plats 15, 16 and 17, receiving nitrogen as dried blood	99 88	39.19
IX	Average of plats 7, 11 and 15, receiving ⅓ ration of nitrogen	118.78	58.09
X	Average of plats 8, 12 and 16, receiving ⅔ ration of nitrogen	114.96	54.27
XI	Average of plats 9, 13 and 17, receiving full ration of nitrogen	106.08	45.39
XII	Average of plats 19 and 20, receiving no manure	60.69	00.00
XIII	Average of plats 6, 10, 14 and 18, duplicates marked "d" in diagram.	107.70	47.01

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We see from these group averages that there is a marked difference between the fertilized and unfertilized groups, and a comparatively slight difference between the fertilized groups. The slight influence of nitrogenous fertilizers on the yield of potatoes is shown by comparing the nitrogen group IV with the non-nitrogen group V, the former exceeding the latter only a trifle over two bushels per acre. We should bear in mind, also, that three-fourths of the plats in the nitrogen group received three fertilizers each, while not one of the plats in the non-nitrogen group received more than two fertilizers. The effect of the nitrogen appears to be in inverse ratio to the amount of nitrogen applied; for the one-third ration plats yielded 118 bushels per acre; the two-thirds ration plats 114 bushels, and the full ration plats only 106 bushels. The nitrogen in the form of sulphate of ammonia gave the best results, the yield being 121 bushels, against 118 bushels with nitrate of soda and 99 bushels with dried blood. The feeble effect of the nitrogenous fertilizers is further shown by comparing groups III and XIV. These two groups received the same quantities of superphosphate and muriate of potash, and differed from each other only in respect to the nitrogenous fertilizers which were applied to group III. The addition of combined nitrogen to this group in quantities varying from 150 to 675 pounds per acre increased the average yield less than six bushels above the yield of group XIV. In other words, the nitrogenous fertilizers applied to group III in quantities varying from 150 to 675 pounds per acre increased the yield only about six bushels per acre, a result not at all commensurate with the cost of these fertilizers.

Although not within the scope of this experiment, it will nevertheless be interesting to note the relative cost of these fertilizers and the profit or loss resulting from their use. In calculating the total cost, we have added to the original cost of the fertilizers fifteen cents per hundred pounds for freight and hauling, and twenty-five cents per acre for applying. The figures in the following table give very nearly the actual cost for ton quantities. Estimating the potatoes worth twenty-five cents per bushel, and multiplying this price by the number of bushels that each fertilized plat exceeded the average yield of the two unmanured plats, we get the value of the increased yield, which is the gross profit from using the fertilizers; and the difference between the gross profit and the cost of using the fertilizers is the net profit or loss as the case may be. The results are calculated to the acre in every case, as in the previous tables.

PROFITS OR LOSSES RESULTING FROM USE OF FERTILIZERS.

No. of Plat.	Cost of Fertilizer.	Value of Increased Yield	Net Gain On Fertilizer.	Net Loss On Fertilizer.
1	$ 4 23	$ 6 46	$2 22	. .
2	4 98	14 93	9 95	. .
3	3 70	5 19	1 49	. .
4	8 95	11 76	2 81	. .
5	7 68	4 25	. .	$ 3 43
6	8 43	8 34	. .	09
7	12 40	13 62	1 22	. .
8	16 38	15 02	. .	1 36
9	20 37	14 66	. .	5 71
10	8 43	17 66	9 23	. .
11	12 25	19 09	6 84	. .
12	16 07	15 16	. .	91
13	19 92	11 36	. .	8 56
14	8 43	14 05	5 62	. .
15	12 92	10 85	. .	2 07
16	15 40	10 52	. .	4 88
17	18 87	8 02	. .	10 85
18	8 43	6 95	. .	1 48

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Assuming that the estimates on which the table is based are correct, we find that the fertilizers were used on eight plats with a profit, varying from $1.22 to $9.23 per acre; and on ten of the plats with a loss, varying from nine cents to $10.85 per acre. We note, also, that with two exceptions—plats 7 and 11—the net profits are from the plats receiving only one or two fertilizers. We observe, further, that seven of the nine plats that received three fertilizers show a loss, and that the loss is in direct proportion to the amount of nitrogenous fertilizers used. Great caution should be observed, however, in drawing conclusions from this table of profits and losses, as slight fluctuations in market values would materially affect the results. To illustrate: If potatoes should be worth thirty cents per bushel, instead of twenty-five cents, as assumed in the table, twelve of the plats, instead of eight, would show a profit. A slight fall in the price of fertilizers would have a similar effect, and a worn soil would doubtless show a greater difference in favor of the nitrogenous fertilizers.

Four lessons of general application may be drawn from this experiment:

First. A partial fertilizer, costing only a moderate sum, will often produce as good results as a costly complete fertilizer.

Second. On comparatively fertile soils, like the College Farm, the use of large quantities of nitrogenous fertilizers on the potato crop will not be found profitable.

Third. The kind or combination of fertilizers that will give the best results will depend largely on the character of the soil, and can be accurately determined only by carefully conducted field experiments.

Fourth. Farmers and horticulturists should look sharply to the question of profit in using commercial fertilizers, in order to have the balance on the right side of the account.

President. This certainly opens a wide field for discussion or questions.

J. C. Stevens. Was the experiment with the same variety?

Prof. Latta. It was with the same variety, Hopack.

H. Gregg. Is any account taken of the subseqent effect on other crops? Will the soil be helped in the future?

Prof. Latta. That is important. Are we improving our soil? I can't answer for we have not a subsequent crop yet. I believe from other experience that results do carry over, but not much from these fertilizers, for they are so soluble.

Prof. J. B. De Mott. This is an important subject and Prof. Latta has treated it as a true scientist. He has shown one side as well as the other. Has Prof. Latta any idea whether those results might not be reversed if tried on other soils?

Prof. Latta. I believe they would hold good to a great extent on other soils similar to ours. They have been tried for four years. On very different soils the results might be different.

Prof. De Mott. Suppose any farmer should go through the rest and should heed the one which gives most gain, how would

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it affect his general pocket? Would any of us who have different soils likely be out if we should just take those which gave most gain?

Prof. Latta. Yes.

How would good stable manure do?

Prof. Latta. I would not want to say it would be better. The cost of applying these fertilizers is about twenty-five cents per acre, but I am not here to argue for fertilizers.

Another point we are trying to bring out. I realize we can't make experiments for other parts of the State, so we are making cöoperative experiments. I have five or six men in different parts of the State who are making experiments on wheat, and we will be able to give comparative results.

J. C. Ratliff. From the fact that there are many manufactories of fertilizers, and their business is increasing, it was necessary that people should be protected from impositions. It is thought necessary that they should be sent to our State Chemist and be analyzed. They are often mixed with useless substances and those which weigh heavily. It occurs to me, inasmuch as they require analyses, these fertilizers should be carefully tested, and it should be made known just how far they are profitable. If they can't be used profitably, I think it should be known. I look upon that experiment to be one of much value. I believe that I can do better with my compost manure. I only speak to show the importance of having these things thoroughly tested. If we find any advantage or disadvantage in such experiments, all the State has it.

C. W. Osborn. What was the deterioration of the production in unfertilized plats?

Prof. Latta. I can not tell. The first year was unfavorable, the next very much better, etc.; so there was no uniform diminution.

Prof. R. B. Warder. The value of our barn-yard manure is not questionable. It should all be used. But it represents only a portion of what we take from our soil, so that is not enough to add. A second point: State law requires the State Chemist to analyze fertilizers sent to him. I have volunteered to make a number of analyses wherever the samples are shown to be fair samples. An analysis takes much labor. It will usually take a day. A sample should part be taken from the top of the sack and part from the bottom, and then mixed. In

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handling the light particles get to the top and the heavy ones to the bottom, so it would not be a fair sample to take just from the top of the sack.

James Sanders. Were the results uniform during the four years?

Prof. Latta. The uniformity was of a fair degree. There were some fluctuations.

Mr. Willmore. How were the potatoes for size? I have been experimenting, and it is not always the greatest yield that is the most profitable.

Prof. Latta. The size was so uniform in the unfertilized and fertilized plats that I thought it not necessary to speak of it in my paper.

Granville Cowing was then called on; he, not feeling well, requested the Secretary to read the following paper:

SMALL FRUITS IN DELAWARE COUNTY IN 1884.

STRAWBERRIES.

The strawberry crop was very unsatisfactory and unprofitable, the yield being generally below an average, and prices lower than ever before, generally ranging from eight to ten cents per quart. Low prices were not caused by a favorable season and an unusual yield, but by a vast number of new patches which poured their contributions into our markets and completely glutted them. Prices ruled so low in all markets that hardly a case of berries was shipped from this point. The low prices of this season may be reasonably expected to continue next year. Eight cents per quart for choice strawberries, grown in the best manner, will never make any one rich. When they fail to make a more profitable return, then cattle raising will be found much more profitable, as it is much less laborious. The owners of many of the great strawberry fields of Southern Illinois are said to be so much discouraged by the present outlook that they will hereafter engage in stock raising, and cease to grow berries. But their troubles are even greater than ours, as they have the destructive crown borer in their patches, which has never found a lodgment in ours. But few of the new varieties furnished any fair berries. Phelps' Seedling greatly disappointed me, as it was as vigorous in growth as Crescent and flowered profusely; but it produced nothing but "buttons." Piper's Seedling was another variety from which I expected much, from its record at home, but while it proved a strong grower, it produced but few berries—certainly not enough to make it profitable. Big Bob is a feeble grower, unproductive and unworthy of cultivation on my soil. Nigh's Superb is also a feeble grower and unproductive, but a berry of fine flavor. Indiana, a seedling of E. Y. Teas, is a strong grower, and its berries are rather above medium size, and are attractive in appearance and of excellent quality. It may not prove sufficiently productive for market purposes, but it can not fail to be desirable for private gardens. Thus far I have been able to note no material difference between Capt. Jack and James Vick. Manchester is a strong grower and flowers profusely, but its foliage burns sooner in our summer

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sun than that of any other variety, and but little of its fruit ever reached perfection, although surrounded and fertilized by many of the best staminate sorts. I have fruited it twice and found it uniformly unsatisfactory. Jumbo seemed much like Cumberland Triumph, both in plant and fruit and in time of ripening, but next year well established plants of it may disclose a greater difference. Bidwell, when in good condition, is a marvel of productiveness, but is peculiarly subject to blight, and thus far has not been satisfactory. Kentucky, this year, was better than Glendale. Mt. Vernon is a strong grower, productive, and its berries are large and of good flavor, but too soft, too dull in color, and are detached with too much difficulty from the fruit stems. Crescent blighted considerably in some portions of my patches, while in others it was free from disease and produced fine fruit. All varieties blighted to some extent in one-year-old patches, and were generally free from the disease in older patches. Newly set plants when struck by it generally cease growing, and often dwindle and die. Cumberland Triumph was more free from blight than any other variety. Sharpless was more productive than ever before, which I attribute to smudge fires burning around it on the night when the last frost fell in May. On that night my son and I remained at work in our strawberry patches until 4 o'clock A. M., firing piles of wood which we placed there the day before, and covered them with sods and earth, to enable them to produce a constant cloud of hot smoke, and to retain fire as long as possible. About 3 o'clock A. M. frost began to fall, and by daylight, in unprotected open fields, vegetation was generally frozen stiff, while the expanded flowers in our smoked patches generally produced berries. Wilson's Albany is no longer grown in this region for market, and all visible on our fruit stands is invariably brought from some other section. Fifteen years ago it was a fair grower, and immensely productive, but now its attenuated rows furnish but few berries, and if I had no better market variety I would cease growing the strawberry for profit. Duncan is still the best flavored strawberry I ever fruited.

At the close of the strawberry season, I found my crop about 140 bushels less than an average one, and that the bulk of it had been furnished by Crescent and Cumberland Triumph. Crescent can be more cheeply grown than any other variety.

RASPBERRIES

were seriously affected by drought, and in many cases did not yield half a crop. Gregg suffered more than Sonhegan, because it ripened later and consequently suffered longer from drought. Although the mercury last winter fell 26 degrees below zero, the intense cold did not seem to injure the wood of any raspberry, not even Herstine, our most tender red sort, which was generally killed to the ground the winter before, when the mercury reached only 13 degrees below zero. Gregg is still considered the best late blackcap, while Sonhegan and Tyler seem to be the most popular early sorts of that color. Cuthbert is the best late red variety. The indications are that Crimson Beauty and Marlboro are likely to stand at the head of early red raspberries.

BLACKBERRIES.

Of blackberries, none were able to even partially withstand the combined frost of last winter and drought of this summer, except Snyder, Taylor's Prolific, Wallace and Stone's Hardy. Such varieties as Kittatimony, Knox and Western Triumph have borne but little fruit. Wherever the first named sorts were well mulched, they produced a paying crop. Wherever they had been neither mulched

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nor cultivated their fruit was of but little value. Last year I endeavored to destroy my patch of Early Harvest blackberry. I did so because it was unusually tender, its berry smaller than that of Snyder, and picked with difficulty, owing to the tenacity with which the fruit stem adhered to the berry. It may be valuable in the mild climate of Southern Illinois, but not here. Stone's Hardy blackberry behaved in such a manner this season as to indicate that it may even surpass Snyder in hardiness. It is remarkably productive, its berries about as large as Snyder's, and of the best quality. It is medium in ripening and remarkably compact in its habit of growth. Snyder is still our best early blackberry, and Taylor's Prolific the best late sort. Wallace and Stone's Hardy ripen between them. Wallace is the strongest grower and less disposed to develop lateral shoots than any other. Some of these hardy blackberries have proved to be the most profitable small fruits I ever cultivated.

GRAPES

were unusually fine and abundant. I heard of no disease among them in other neighborhoods, and certainly there was none among mine. Seasons of drought are, I believe, generally favorable to the grape. Concord still holds the main place in our markets, but some of the newer sorts are growing in favor, and are constantly seen on our fruit stands. Ives' Seedling is not grown here, but is brought from the South, and is the first grape to fill our markets. In quality it is but little better than a wooden grape, but presents a fair appearance, and therefore deludes and disappoints the ignorant buyer and causes him to avoid all black grapes for some time after testing it. Champion is a large early black grape of much better quality than Ives or Hartford Prolific, and more attractive in appearance. Worden ripens a little later, but is earlier than Concord, and is the best black grape I have ever tested. Prentiss proves to be very tender and altogether unsatisfactory. To the English sparrow I attribute the loss of many of my grapes this season. Until this year I was able to keep that bird from my premises, but a few months ago it came in such overwhelming numbers that I temporarily abandoned the contest. I believe that the English sparrow will ultimately prove as injurious to horticultur and agriculture as have the curculio and Hessian fly.

G. COWING.

MUNCIE, IND., Nov., 1884.

President. In regard to the Manchester, it behaves differently with me. It is one of my best. It does sunburn a little but it has the finest fruit of any except Cumberland. I differ with the writer on another subject. That is in regard to Ives Seedling. I don't think it the best grape in quality, but it gets black before it is ripe. If it hangs on about a month it is a fair grape, and you can always have them.

G. Cowing. I once cultivated them and I never found any I thought were good.

Secretary. There is a wide range of tastes.

President. Mr. Cowing must grow good varieties of grapes. The sparrows do not touch mine.

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Dr. Furnas. I noticed Professor Latta, asking us to take a note of his fertilizers. I notice that people are trying to take notes. It is not worth while. You can not leave out any part of Professor Latta's paper, nor Mr. Cowing's. You can get it all in print if you will join our society. I have quit taking notes.

President. These papers are worth ten times more than it costs to become a member.

J. Sanders. I want to notice two or three points in Mr. Cowing's paper. I think the fact that markets are overstocked is one reason we should continue. Many will be disgusted and quit. A potato raiser once said he planted ten dollars' worth of seed every year. He always succeeded. He planted more or less according to the price of the seed. My experience is that the demand increases every year for small fruits. It is so in my place. My experience with Ives has been very similar to President Johnson's. I regard it as one of my best. It never rots or mildews.

Dr. Furnas. Another quality is it will keep as well as Janet apples. Put them in drawers and keep them cool and you can have them now or later.

W. H. Demory. In regard to the sparrow, I trust no gentleman here would think any bird, taken altogether, would be detrimental. Does any one know that sparrows ever get any insects? [The President answered that stomaches of sparrows have been found with insects in them and no grain.] I speak from experience. It is true I am a lover of science but I am a little on the fogy order. I think there is no bird but is useful. I think there is no reptile but is a help to the farmer, especially in small fruit. On warm evenings in July, I have seen snakes catching insects. I have examined some, and they were full of insects. I think anything that will destroy insects is worth saving. In regard to Ives, they become dark a month before they are palatable. I have sixteen varieties of grapes; Concord is most profitable. Roger's No. 15, is a good grape. I have seen the sparrow and other birds take grapes on the upper part of the arbor, but the sparrow also hunts around in the grass for insects a great deal. There is a white grub which hurts strawberries here. My experience is, we should use preventives. Coop a hen in the garden and let the chickens run.

Mr. Peelle. I rise for two points. I did not know there were

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so many radical enemies to the sparrow. I think they are a particular enemy to cabbage worms. That is all I have known them to bother. I wish to ask Mr. Cowing what he would plant as a fertilizer for Crescent?

G. Cowing. Any good fertile flowering plant, Cumberland, Wilson, etc.

Mr. Peelle. What proportion of fertile plants?

G. Cowing. Every eighth or tenth row I think sufficient. Perhaps three or four to eight or ten would be better. They talk about the influence of one variety on another. I never have seen it.

Dr. Furnas. It has an influence on the next generation.

Secretary. Professor Lazenby, of the Ohio Agricultural College, and other prominent men hold to the idea that it does. It is pretty hard for me to believe, but when backed by such men, I am inclined to hold it on probation at least. Some two or three years ago, there was an apple sent to us one-half of which was Baldwin, the other Rome Beauty. It was the most marked thing of the kind I ever saw. Perhaps recently some of you have noticed in the Rural New Yorker, an account of the effect of the pollen from a pear tree on an apple.

W. H. Ragan. This is an interesting subject. Those who have read have discovered that much has been said about it by Parker Earl of Illinois, O. C. Gibbs of Minnesota, and others of that class. They are very certain that there is an influence in this direction. They say the Crescent fertilized by Sharpless is very distinct from those fertilized by others. I think it is largely due to imagination. I make this statement without careful observation. It hardly seems possible with me. The strawberry is merely the receptacle on which the seeds rest. It corresponds to the cob in corn, and how that can be affected is beyond my conception. Some prominent men are in favor of the idea, but some, as Peter Henderson, say it can not be. Crescent, under such a theory, would not be a distinct variety, but we know it is. I brought up some Crescent from Tennessee. Parker Earl thought they were very different from his, much firmer. He fertilizes, I think, with Bidwell. I think it all theory, no one knows it. It is like what Dr. Warder said at the first meeting of this society about the influence of the stock on the fruit of the apple tree. Some expressed their opinion against the idea. Dr. Warder said old women believed

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it to be so, but when you get it down to a meeting of practical men, it is not believed.

Prof. DeMotte. I am not surprised that Mr. Ragan does not believe old women. It is common for boys not to. It may come to him in old age.

The President read from Mr. Hale on this subject, page 121 of the second volume of the Mississippi Valley Society's Report.

J. C. Stevens. When I commenced I had Wilson, Green Prolific and Charles Downing. After I got about one hundred varieties, without having heard anything of this theory, it seemed to me I could see a difference. I did not say anything about it. I took some plants away from the rest of the varieties so they were fertilized differently. It may be imagination, but I am convinced in my own mind. I will admit that there are things about fruit which we are not fully informed about. Some of the members of the Wayne County Society will remember last fall I produced a potato half white and half blue. I divided it on a line between the colors. I planted them and drove a stake between, marking one side blue, the other white. On one side the stake were white potatoes, on the other blue.

Mr. Gregg. What season of the year is best to plant strawberries?

Answer. Early in the spring.

E. H. Williams. About overproduction of strawberries, I should be sorry to feel that this society had run to a limit. I can not agree with such assertions. I can hardly conceive the overproduction of anything in such a country. Men come to me and ask if I think it possible to overproduce. I invariably tell them no. I think the consumption increases in proportion to the increase in production. I think we should loose the idea that we must make a large amount on a small piece of ground. Wheat men do not quit raising wheat because the profit is small. I think it true that many men drop out of the business because they are not proper men to grow fruits, not because it is not profitable to grow them. I believe the time is coming when we will raise three times as many strawberries and find market for them.

President. As a rule spring is the right time to plant. But there are persons here who do not want to plant much. I would recommend fall planting, if you can water and take care of the plants, for you can then have a crop the next season.

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Dr. A. Furnas. In regard to spring planting, it is best on my place, but the answer was too sweeping. When Mr. Heinl came to my place he said they put out cuttings in the fall, and they do not heave out. I can't do it. They have a sandy soil, and I have not.

President. I would not like *late* fall planting.

Dr. Furnas. There is one way you can keep plants from heaving out. You can put them in pots.

Mr. Gregg. How about it in case a man wants to plant ten or twelve acres in the fall? I set out such a piece in October. It was too dry earlier. I would like to ask what is the best way to protect my plants?

W. H. Demory. I am growing strawberries for home consumption. My experience is, if you want a crop next year, put out in August and water them. I mulch with rye or wheat straw. About the tenth or fifteenth of April I rake the straw off.

Secretary. I think small planters can use potted plants safely in the fall, but it is too expensive on a large scale. Unless the weather is showery and favorable you can't succeed with unpotted plants. If you plant early in the spring you can't fail.

J. C. Stevens. When a man talks about planting a small patch, and then a large one, he changes the circumstances. Four years ago I planted 10,000 plants early in the spring. I don't think I lost half a dozen plants. In the fall I planted 5,000 more—my own plants. About two-fifths of the fall planting were frozen out under the straw. It was as much work to replant as it was to plant in the first place.

Mr. Gregg. I may be mistaken, but I was of the opinion that by covering the plants and leaving part of the mulch on the ground, it would increase the yield. The joints of the runners send out roots when not covered, but if covered they are held back and it goes to berries.

H. Gregg. In regard to mulching, I once used clover straw. Clover took my patch.

G. Cowing. We draw the straw to the center of the row in the spring. We don't take it away. We use wheat straw. After fruiting, we remove a portion and then plow with a one-horse bar-plow. It covers what straw is left in the middle of the row, and it rots,

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In answer to a question, the Secretary spoke as follows: When plants are planted in October, it will not pay to let them fruit the next season. I would remove the straw in the spring and cultivate them.

President. I have a series of questions I found in the query-box, as follows:

We have had able dissertations on various insects, worms and bugs, but nothing as yet relative to the habits, customs or instincts of the "big-bug." Is he of city growth, or does he infest the rural districts as well? Will the common insect shower bath affect him, and, if so, how should it be applied? Is he carniverous, herbivorous or herbi-carniverous in his habits? Does he hibernate during "hard times," or does high or low tariff affect him? Is his hair parted behind by manipulation, or is it the result of heat radiation from the focus of the base brain? Does he pray at church, or is his *preying* limited to cabbage and early beans?

Some one suggested that the President answer.

President. I live in the country and I don't think we have "big-bugs."

Then on motion the report of the Committee on the Recommendations of the President's Address was taken from the table.

Gen. Stone read the report:

Mr. President:

The committee to whom was referred your annual address containing certain recommendations, have had the same under consideration and have directed me to make the following report.

First. That the plan heretofore adopted of appointing members of this Society to visit counties where no Society exists, for the purpose of organizing Horticultural Societies, and also to visit county Societies whereever and whenever in the opinion of the President it becomes necessary for the interests and benefit of Horticulture in our State, be and the same is hereby continued and that a small appropriation be made for the same to defray in part the necessary expense therefor.

Second. Your committee further recommend, that in consequence of the wholesale destruction of the cereals and large and small fruits of the State by various insects, the appointment by the Legislature of a State Entomologist should be made, and for the purpose of getting this very important matter properly before the Legislature, we recommend that the President prepare blank petitions for that purpose and forward them to such persons in the State as he may think will actively circulate them for signatures and promptly return them to him.

Third. We further most respectfully ask the Legislature to so change the title of the law authorizing the collection of license fees for shows, etc., as to make the law more effective, so the same can be enforced as the Legislature originally in-

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tended it when enacted, and that the Legislature be requested to make the annual appropriation for this Society five hundred dollars, as it formerly was, and further your committee recommend that the President, Sylvester Johnson, Dr. A. Furnas, and A. Stone, be and are hereby appointed to take full charge of all these matters with a request that they look after the interests of this Society, and as we fully believe, the interests of the whole State, in presenting all of the above requests to the Legislature at its approaching session.

Your committee further recommend that all county Societies, pay the expense or part thereof of at least one delegate to represent them at all meetings of the State Society, requiring of them a written report of the main transactions of the same, believing that by this means our State Society will be more largely attended and rendered thereby more effective.

The resolutions introduced by Dr. Clifford and referred to this committee, is hereby returned for the action of this body.

Respectfully submitted,

A. STONE,
T. W. KIZER,
Committee.

It was taken item at a time.

On motion the first item was adopted.

After the second was read it was discussed as follows:

J. C. Ratliff. It seems to me this Society ought to adopt this by unanimous vote. It would give it weight. It is of great importance. For many years we have made efforts to have an entomologist appointed, but have failed. Now circumstances are different. More information can be obtained through an entomologist and ornithologist than by our discussion and investigation. I have nothing to say in defense or support of any bird, for I do not think it will amount to much here, but it will if we get an entomologist and ornithologist. I think a memorial to the Legislature would have weight.

Dr. A. Furnas. I do not see but this would come with as much prestige this way as any other. I tried to introduce such an office. It scares our people almost into conniptions when you speak of creating a new office. I think it would be better to take one at a time. I think we had better strike out ornithologist.

W. H. Ragan. I was about to suggest what Dr. Furnas has said. My suggestion would be, since an ornithologist would be of little use to enlighten us, except about insectivorous birds, and an entomologist would have to know that, we would better strike out the ornithologist.

President. I think that a good suggestion.

W. H. Ragan. It occurs to me there is a good deal of machinery about circulating petitions. I think a memorial would have all the weight.

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J. C. Ratliff. I think, coming from such a Society as this, a memorial would have all the weight we could give. Petitions are often cast into the waste-basket, and memorials are most always read.

Gen. Stone. This thing has been in our proceedings year after year, and they have not paid any attention to it. If you want the Legislature to work you must get the *people* to punch them a little. If you want to make an absolute demand you must ask the people to come up and sign a petition. Woe betide a man that would cast a petition into a waste-basket. The short time we have is all that is against us. Perhaps we could get 50,000 names. It would have much more influence than a resolution from this body.

Prof. De Mott. I think doubling the name would have much weight, for they would think they were getting both offices filled by one man. I move that an amendment be made to the resolution coupling with entomologist, ornithologist.

Prof. Troop. That is all right providing you can get a man posted in both. We want an entomologist. I think men are scarce who are thoroughly posted in both.

Prof. De Mott. In the word ornithologist we do not want a man who can classify all birds, but he ought to know whether birds will eat insects, etc.

Prof. Latta. The last speaker has suggested what was in my mind. It seems to me the gentleman has put an interpretation on the term. That is our interpretation, but if it passes it will be taken to cover the whole scope of ornithology. I think it would be best to specify what we want. We want an officer, whether with double title or not.

Secretary. It seems to me that an entomologist is all we can hope for, and he can go far enough into ornithology for all practical purposes.

Then the meeting adjourned till 1:30.

Afternoon Session.

The house was called to order by the President at 1.30.

While waiting for others to come in the question box was opened.

What is the best early black raspberry?

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Secretary. Tyler or Sonhegan for early berries, Gregg for a late one.

How long can we extend the season?

G. Cowing. About four weeks.

What difference is required in planting and cultivating black and red raspberries?

Prof. DeMott. It depends very much on the variety. They are so different in growth. I do not think there can be a line drawn between black and red.

C. W. Osborn. I asked that question. I got what information I have from Silas Hudleston. He puts plants two or two and a half feet apart in the row and the rows six or seven feet apart.

In raising red berries, how do you keep down young plants?

Secretary. The common practice is to let them form a continuous row. Do not allow them to get too thick. I think the distance you speak of for blackcaps about right.

Mrs. Hodgins. In raising black raspberries, do you take out the old growth?

Secretary. We remove the old canes in the spring. We pinch back young canes to eighteen or twenty inches. This induces a vigorous growth of laterals. These are cut back in the spring, according to their vigor to twelve or eighteen inches.

President. It is a question whether to remove the old canes in the fall or spring. I think they are a protection in the winter in assisting to support the new canes.

Prof. DeMott. In regard to training canes, I believe it will pay for the time, to set plants three feet apart in the row, and support them with a wire, and tie the canes so they are spread out like a fan. Then berries are much easier picked. I should cut out old canes in the fall to make this easier, and to kill the insects on the canes.

J. C. Stevens. I suppose we differ as much as in strawberries. I plant my blackcaps four feet apart in the row and the rows eight feet apart. As soon as the last berries are picked, I take a hook and hook out the canes that bore the crop and burn them. Thus I destroy the raspberry borer. I claim by taking out the old canes, the young growth is more thrifty, and throw out more laterals. I have a patch managed in this way which is the admiration of the whole neighborhood.

Secretary. What time does the raspberry borer hatch out?

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G. Cowing. I can't say, but I suppose as soon as they have heat enough.

Secretary. Our canes are taken out early in the spring, usually before the frost is out of the ground. So I think the borer does no more damage than if the canes are taken out sooner.

W. H. Demory. There is an insect that it seems like nature has supplied, and cutting away the canes does not keep them out. I find their eggs are under the ground, and they do not come from there till the middle or last of April. That is my experience and observation. But it is necessary to take old canes away before they will be in the way of young growth. In this way you can make canes self-supporting.

Dr. A. Furnas. My notion is, we ought to cut out old wood. If you wire them you just want corn husk to tie with. It will last two years.

Then the unfinished report of the Committee on the President's Address was taken up.

On motion, the resolution in regard to State Entomologist was adopted.

On motion, the part referring to an ornithologist was stricken out.

The next item was read.

L. B. Custer. If I am not mistaken that subject has been before the Legislature before, and the trouble is the theaters fight it and do all they can to defeat it. That is the reason it has not passed.

W. H. Ragan. What is aimed at is to get licenses from all these traveling companies. All those owning opera houses, etc., are opposed to it, for it is imposing on their customers.

This was adopted, also the next in reference to an appropriation.

The next was amended by adding the names of General Stone and Dr. Furnas.

The next, in regard to local societies sending delegates, was adopted.

On motion, the report as a whole was adopted.

Then Prof. R. B. Warder read the following paper:

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THE FUTURE OF INDIANA SOILS.

BY ROBT. B. WARDER, STATE CHEMIST.

[Some of the following facts were laid before the Purdue Scientific Society, October 20, in papers prepared by Messrs. Moor and Thatcher, of the Senior Class in Agriculture.]

Are the soils of Indiana becoming impoverished? What should be done to preserve or reclaim them? These questions will be variously answered by the owners of failing uplands and of rich bottom or prairie farms. The prevailing testimony of farmers, as well as that of the census reports, shows a diminution of fertility. If a father seeks to secure a good bank account or investments for his children he should especially guard his land with jealous care, to leave an unimpaired soil to posterity.

What elements required for plant growth are most likely to be deficient in the soil? The greater part of a plant consists of carbon, oxygen and hydrogen, which are obtained from the air. Nitrogen is likewise a most important constituent, and the plant draws its supply from the soil. This element may be furnished indirectly from the atmosphere, however, and the nitrogen supply will not be further considered in this paper. When a plant is burned the ash contains those elements which can be obtained from the soil alone—elements which can not be removed without permanently impoverishing the soil. The analysis of the ash, therefore, gives us important information in regard to changes effected by continual cropping. The greater number of these constituents, however, are required in such small amounts or are so abundant in the soil that a deficiency in respect to these need hardly be feared. Besides nitrogen the elements which must most often be supplied in artificial fertilizers are acid, potash and lime. The latter being relatively cheap, we may compute the amounts of so-called phosphoric acid and potash annually drawn from the soil by our several field crops, pasturage, etc., and compare them with the quantities supplied in commercial fertilizers.

The total product of the principal field crops for 1880 was taken from the United States Agricultural Report, and combined with the average ash determinations found in Armsby's "Manual of Cattle Feeding," and with Wolff's table of ash analyses as quoted in Johnson's "How Crops Grow," with the following results, which were calculated by Mr. J. D. Moon, of the Senior Class in Agriculture in Purdue University. To indicate the relative effect of different crops, the table gives the average number of pounds removed per acre of each crop, as well as the total amount removed from the soils of the State in 1880. Straw and corn-stalks are not included, but bare grain:

CROP.	POUNDS PER ACRE.		TOTAL IN TONS.	
	Phos. Acid.	Potash.	Phos. Acid.	Potash.
Wheat	5.84	3.42	8,660	5,075
Corn	10.89	6.42	18,625	10,995
Oats	4.41	3.38	1,404	1,079
Rye	6.45	4.12	73	47
Barley	8.65	7.27	71	59
Buckwheat	5.83	2.80	22	11
Hay	7.28	19.41	6,220	16,590
Potatoes	6.08	19.05	178	560
Tobacco	2.86	51.49	15	273
Total			35,268	34,689

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The total amounts of phosphoric acid and potash thus removed in a single year are about 35,000 tons each, as computed from the best data available. A portion of the crops is used at home, and returned to the soil; but part is exported from the State, and large amounts are consumed in cities or in badly arranged barn-yards, so that the ash constituents are returned to our rivers, and sent (with no charge for freight) toward the Gulf of Mexico.

Let us now consider the amounts of phosphoric acid and potash taken into the stomach of our live stock, whether supplied from the pastures or feeding pens. The data for this estimate are rather uncertain, but the following computation was carried out by Mr. M. Thatcher, with the best data available. In accordance with the feeding standards published in Armsby's Manual, we may allow mean daily rations as follows for 1,000 pounds live weight of each kind of stock:

For cattle, 25 pounds of hay and 3⅓ pounds of corn.

For swine, 30 pounds of corn.

For sheep, 30 pounds of hay and 3⅓ pounds of corn.

For horses, 15 pounds of hay and 8 pounds of oats.

It is not to be understood that such expensive fodders are actually used all the year, but the ash ingredients taken with the food of our live stock will scarcely be less than our estimate. The number of head was taken from the United States census report for 1880, and average weights were assumed to be 700 pounds for cattle, 150 pounds for swine, 90 pounds for sheep, and 800 pounds for horses. From these figures (combined with ash analyses, as before) the potash and phosphoric acid consumed are estimated as follows:

	Phosphoric Acid in Food Taken. Tons.	Potash in Food Taken Tons.
Cattle	22,296	52,789
Swine	17,540	10,590
Sheep	2,708	6,479
Horses	95,87	17,955
Total	52,131	87,813

In round numbers, 52,000 tons of phosphoric acid and 88,000 tons of potash are consumed annually by the live stock. The latter figure would be still higher in the case of swine if based on analyses of grass and weeds, instead of an equivalent amount of corn. Now, just as far as these ingredients are returned to the soil no permanent loss is incurred, and we see the advantage of mixed husbandry over the mere raising of field crops to be sold. But are not a majority of our barn-yards badly located, so that the drainage containing the most valuable fertilizers is allowed to pass off into some little stream to enrich the Mississippi bottoms, or be lost in the ocean?

The fertilizer trade has but lately come under State control, but already a rough estimate of its extent may be formed. During the year ending September 30, 1884, 69,000 tags were issued. Assuming that each tag would be placed on a package of 200 pounds, like the sample analyzed, the total quantity of phosphoric acid in the annual supply of commercial fertilizers would be 1,051 tons, the potash amounting to only 65 tons. This estimate is probably too high, as the labels are ordered in sums of 500 or more, and dealers may often have a surplus.

The following table exhibits the gross amount deduced in this paper, expressed in round numbers:

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COMPARATIVE TABLE.

	Phosphoric Acid Tons.	Potash. Tons.
Drawn from the soil by field crops	35,000	35,000
Consumed in feed of live stock	52,000	88,000
Supplied in commercial fertilizers	1,000	65

Our fertilizer trade, with all its activity, thus sinks into insignificance as compared with the requirements of the farm. The greatest care should, therefore, be taken to husband our resources. Cattle-raising, when properly conducted, has the advantage of retaining the greater part of the plant food upon the farm, but a waste of two per cent. of the manure would probably be sufficient to offset the entire supply of commercial phosphates, and entail a loss of thirty times the supply of commercial potash.. Such a loss would amount to two million dollars, at the moderate estimate of eight cents per pound for phosphoric acid, and five cents per pound for potash. The loss from our barn-yards alone is more likely to be at least ten or twenty million dollars yearly. The loss may not be felt in a single year, but we already feel the accumulated losses of many years, and the progress of destruction continues. True there is enough left in the soil for many crops to come, such as they may be, but the question of riches or poverty for the next generation must largely be determined by our own foresight or neglect. The future of our soils will be whatever we choose to make it. Besides proper care in the selection of a suitable site for the barn-yard (that the drainage may not be wasted), we should utilize all available fertilizers, such as wood ashes. Indeed, ground bone alone is an incomplete fertilizer, for, as shown above, the demand for potash is quite as great as for phosphates, while the supply sold for agriculture is but one-fifteenth as great. Quantities of leaves are burned in the streets, where the ashes are practically wasted, while the fields are hungry for the materials washed into the gutters. Even the potash washed from the wool produced in the State is some three times the quantity supplied in commercial fertilizers. If farmers of the nineteenth century do not heed repeated warnings, those of the twentieth century will have good reason to blame us.

This paper was followed by J. D. Hampton's report. [Read by his daughter.]

Mr. President:

I herewith submit my report as delegate to the Michigan State Horticultural Society.

We took the train at Fountain City, under the care of conductor Joseph Parry, who is ever on the lookout for the comfort and safety of the passengers. Arriving at Fort Wayne in due time, we changed cars for Auburn, twenty-four miles north, where we arrived at the going down of the sun, in all its beauty, making every thing in nature not only look beautiful, but reminding us that the hand that created all things for the enjoyment of man was divine. On inquiry we found we could not reach our destination without lying over one night, and finding here some friends, and that we were in the midst of a good fruit-growing country, we remained over. On inquiry we found the general crop of fruit good, especially

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apples. Strawberries are not so extensively cultivated here as at some other places in the State; but the wheat can not be surpassed, the present condition of which causes the farmer to look upon the green fields with bright anticipations.

Next morning we resumed our seat in the cars for Bay City, via. Jackson, Mich., where the meeting was held.

Owing to some detention on the road we did not arrive in time for the morning session. My first feeling on reaching Bay City was akin to a strange cat in a new garret, but on arriving at the hotel I began to feel at home at once, and certainly appreciated the warm welcome and hearty hospitality of both members and officers.

The meetings were held in the court-house, a fine edifice, with yard shaded by large trees, and a fountain plashing in the space between the curves leading to the entrance. The court room wore any thing but a legal aspect, with its decorations of growing ferns and pot plants, and the bouquets and floral designs sent in for exhibition. The display of strawberries was large and excellent. President Lyon made the largest exhibit, showing thirty-four varieties, the largest being the Sharpless (which a horticultral wit said might be changed to shapeless, being so irregular aud homely in shape). Plates of the Manchester, Cumberland, Chas. Downing and Bidwell, of lesser size, but perfect in shape and beautifully colored, were more attractive than the overgrown monstrosities. This berry-ladened table was the center of attraction, the visitors took great interest in it, and fruit growers gathered about it to compare experiences, exchange opinions, and fight their battles over again.

The discussions which followed the reading of the various papers prepared by the members were spicy and interesting. When a man gets up to tell "all he knows" of a subject in from three to five minutes, it becomes a study how to say the most in the shortest time and he goes straight to the mark.

I also learned a few new ideas for our housekeepers. The varieties of sweet corn with colored cobs, says Prof. Tracy, are not popular because in cooking the cob discolors the corn and makes it unattractive in appearance. The discoloration is prevented by putting the corn in boiling water at first, instead of allowing the corn to soak in the water while raising to the latter point. We may "make a note of it" that sweet corn with any kind of cob should be put into boiling water, if boiled at all. But Mr. Davis, of Lapeer, who gave us his experience in evaporating sweet corn, says corn should be steamed, not boiled, for that purpose, and he might have added that the same process is advisable for that intended for table use.

I was rather surprised at the small attendance of ladies. If they knew how enjoyable these meetings are, they would hardly allow their "liege lords and masters" to go alone and have such a good time all by themselves. Owing to an inconvenient but needed shower I saw little of Bay City, but returned with the impression that it is a very pleasant and lively town.

I was delighted with the beauty of the country as seen from the car windows about Orion and vicinity. The green slopes and gentle undulations, clover-crowned and dotted with pleasant looking home farms, with little streams winding in and out through fields, now darting into the woods to escape the sunbeams, and then demurely threading a wheat field, made a very pleasant picture to the dust-covered traveler on a hot June day.

Respectfully,

J. D. HAMPTON.

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E. H. Williams, of Indianapolis, was then introduced.

Mr. President, Ladies and Gentlemen:

I am not exactly like the gentleman who went to Michigan and felt like a cat in a strange garret, but more like the minister who went to church and left his sermon at home. When the Secretary came to me I told him I did not have time to prepare anything, but I consented to have something. It passed by till I received a programme. Sandwiched in between professors, I am reminded of an incident about the burning of Gen. Stone's house. Some one, in his excitement, picked up some beautiful glass vases and the andirons, ran out to the fence, set the irons over carefully and threw the vases on them. I do not want to throw what I have out on the glass vases and break them. There is no subject I am more interested in than horticulture, and especially in preparing fruits for market. Any one acquainted with the history of this country must be impressed with its vastness and magnificence. Its stability and perpetuity rests in its soil. We are in our infancy. The country has not been developed as it should be. We are too penurious. I might say I can remember when I was on a farm that I thought a newspaper at $2 per year was too expensive. I want to say that a man who can get along without a paper had just as well write on his gate-post "Ichabod." I believe a good paper like the Indiana Farmer is worth more to a man than his best horse. And these things you hear here will pass from your minds unless you have them so you can keep them. One thing depresses me, and that is to see here so many gray heads. The young must come up and take their places. I look forward to the paper we are to have to-night with interest.

A successful fruit-grower is not necessarily a success after he has grown a good crop. I have seen some of the best crops wasted by their system of marketing. This brings me to my subject, "The Preparation of Fruits for Market." I was sorry I did not put what I have in writing, so it might be preserved better. I was asked to read a paper for the Mississippi Valley Society. I do not know that I can do better than to read some of it here, and I want to speak a word for this book, not because my paper is in it, but because there are so many papers in it which are of value.

"The strawberry should never be picked when wet. The picker should be provided with a tray holding from four to six quart boxes (if they can be shaded the better). All over-ripe fruit should be put in a box by itself, for home use or market, but never for shipping; the small, imperfect berries in another, and kept separate. When brought in, the boxes should be inspected, filled up full and set in as cool a place as you have until ready to crate."

Perhaps the most successful shipper I am acquainted with is Parker Earl, of Cobden, Ill. One of his secrets of success is that he has a cooling-house, and keeps his fruit cool until he ships it.

"Then each grade of fruit should be crated by itself, and the stencil of the consignee placed on each crate, also a stencil No. 1 or 2, designating the grade of fruit. The number of your stencil soon becomes known, and the reputation of your fruit becomes established according as you are honest in putting it up." I question the propriety of putting your private stencil of fruit. A commission man goes by your number, while if you put your own stencil on it is copied by unreliable men. Some of our best fruit men buy of us without seeing the fruit. They come and want so many of a certain number of stencil.

"After your fruit is carefully crated and marked, it should be taken to point of shipment in a spring wagon, and never in a jolt wagon, as the latter jolts and packs the fruit down, bruising it, and thus rendering it less liable to carry safely. Care

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should also be taken with the fruit while awaiting transportation, that it does not sit either in the sun or rain. It should enter the car in as dry and cool condition as possible. What has been said of the strawberry will apply to the raspberry, except to the red which should be shipped in pint boxes with the same surface as the quart boxes."

"Grapes ship best in five or ten pound packages; or for long shipment, when properly packed, they carry and sell well in stands of four trays each—a tray containing twelve to fifteen pounds. The dry grapes should be picked off, and where the bunch is poorly filled, it is best to discard it, and the good ones packed in with care, and as tight as possible without bruising."

In connection with this stand business, I would say we abhor stands. We do not like to have packages which are returned. In southern Illinois and in the south, fruit growers furnish their packages. A few years ago fruit was handled mostly in stands, commission men are expected to furnish them. We have to wait for them until they are emptied. It costs us $800 a year, to gather up and ship back the stands.

"Peaches, pears, and early apples sell best in one-third bushel boxes. Peaches and pears should be carefully picked, and all over-ripe fruit discarded, and each variety packed by itself, and of uniform size. The fruit should be laid in the boxes carefully, pressed in so that when the lid is nailed on, the fruit cannot move. When so packed it carries a long distance. This style of packing will also apply to tomatoes, always bearing in mind that it is dangerous to pack either fruit or vegetables while wet." We are shipping tomatoes from Mobile, New Orleans, etc., very well in small crates. "I find many raising early apples, and some even later varieties, who allow them to drop off or shake them, which only indicates want of knowledge in the business, or a degree of carelessness that a few ventures ought to remedy. Fruit so gathered seldom realizes enough to pay for handling."

"Fall and winter apples should be carefully picked and packed in new barrels, placing the first layer in the bottom of the barrel, with the stems down, using only average sized fruit; then fill carefully until full, shaking the barrel gently once or twice while filling. Fill well to the top of the staves; put on the head, and press into place with lever or screw. After the head is nailed in, turn the barrel and mark plainly the variety of fruit. No fruit or vegetables should be mixed in packing, as no two varieties cook or eat alike, and it only diminishes the value of your goods." I have worked for years to try to get our farmers to understand that a mixed variety can not sell. I have no use for a mixed potatoe. I would not have it at any price.

"Great care should be observed in marking, that when received by your commission men, he knows at once the variety, and puts on sale without delay those least liable to keep. If not marked, he has no knowledge of his stock. A customer comes in and calls for certain varieties, but the seller does not know whether he has it in stock or not; in a short time he discovers some ripe varieties (which could have been sold if known to be in stock), decaying badly, and they are at once rushed onto the market only to be slaughtered."

We got a car-load of fruit from Missouri, and the barrels are so marked that we can not tell which way they are faced, and to find out we have to open both ends perhaps. Never be afraid of bruising your apples by pressure. They can be pressed a great deal and not bruised. These instances of bad packing we have constantly, not only with apples but with berries. I think it would be well for a man sometimes to get on the train and follow his fruit to market. He will not wonder at his receipts. I may say here for the benefit of our ladies, that some of the best fruit comes from those places where ladies superintend the packing.

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"Apples should never be poured into a barrel loose, as they shake around in the barrel, and open up slack filled, bruised and unsalable. A very little pains adds much to the selling of fruit. To illustrate: A party shipped us four barrels of Maiden's Blush in sugar barrels, poured in loose. When received they were badly bruised, yet showed that it had been fine fruit. A price was placed upon it, but it was rejected as not being worth the money. After standing around all day, it was rolled into the house, carefully assorted and repacked in ordinary apple barrels. After throwing out the bruised and discolored fruit there was enough to fill four ordinary apple barrels, which were put on sale next morning and were taken in a short time at one dollar per barrel advance of what was asked when received. The work of repacking was the work of about thirty minutes. I wrote the party, complaining of his packing, and his excuse was he did not have time; yet we made four dollars for him in thirty minutes. Now, I do not know what he was engaged in, but if he could make more than four dollars in thirty minutes, it must have been profitable work."

"A case, almost similar, occurred only last week. I might say, though, we do not make a practice of repacking our shippers' fruit, but sell it for what it will bring in the condition in which it is when put up."

"Another radical evil we have to contend with is dishonest packing. The fruit is put up with every evidence of being fine stock; but after taking about a half bushel out of the barrel, it only reveals the deception, and it is not worth one-half what the first impression would convey. To such an extent is this practiced, in apples especially, that in many markets it is hard to buy an honest car of fruit. Some States, however, seeing the injurious effects of such practices, have been grading their fruits into firsts and seconds. Fruits so packed, meets with ready sale at good prices. This practice is becoming quite common in Michigan, and should be followed by all other States."

"I know of but one way to remedy the evil, and that is for commission men receiving such stock to sell at the price of the lowest grade, and when the shipper learns that deception is a losing game, he will discontinue it. Much of this fruit, however, has been purchased by innocent parties, and they are compelled to carry out the deception or lose money."

"It also has a bad effect on the market, not only in creating distrust, but largely diminishes sales. Parties who retail such fruit say they invariably lose money. They find after selling out part of a barrel, the fruit is so inferior that their customers will do without rather than pay even cost price, and in this way consumption is largely reduced. This deception is not only in apples, but is practiced in other fruits, especially box fruits."

Another thing we have to contend with, is dishonest commission men. I have no palliation for them (but I do not like to see dishonest farmers). However, much is laid to the commission men when the fruit is badly handled by those through whose hands it goes before it gets to them.

In regard to packages, it has been customary for commission men at Indianapolis, and I believe at Cincinnati, to furnish stands. The twenty-four quart crates (which are not returned) are furnished by the grower.

I believe if properly done there is no danger of overproducing. Overproduction may occur in one year, but as soon as the fruit comes in reach of the laboringman there will be no danger of glutting the market. I have watched this closely with tropical fruits. If you will take the results you will be surprised how much more is used than formerly. I believe when fruits come to be as common as they should be, there will be better health. I don't believe horticulture is adapted to every man. When you realize that plants have some qualities which men have,

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you may see that a rough man will not suit horticulture. I do not know that I can advance anything more, but if there is a question, I will answer it if I can.

W. H. Ragan. What is your experience in handling apples in different sized barrels? What is the best size?

E. H. Williams. I believe I was on the committee of packages, at the Mississippi Valley Society. That was a question discussed. We concluded a flour barrel was the best. It is always available is one reason. When we use smaller ones we have to contend for prices. We have had 1,500 barrels from the East. We ask them to specify price and size of barrel. There is always a difference in price and we make a difference at Indianapolis. So nothing is gained by small barrels.

Mr. Gregg. What varieties do you handle to best advantage?

E. H. Williams. We are handling Baldwin principally because it predominates in the East. It depends much upon the taste of our customers. [Some one asked about the price of Ben Davis]. It is a little better. It sells upon its face. I do not like its quality, but it is an eating apple now and does well for a stand apple.

J. G. Kingsbury. I was once told by a commission man that he did not want to deal with Indiana apples, for they do not compare with others. How do they compare?

E. H. Williams. We get very fine apples from the northern part of the State. An apple grown in cold climates is more firm and a better keeper. We hold our apples from the Northern States, as New York and Michigan, for winter use. Some of our apples here serve their place well, but are not so good for winter use.

Dr. Furnas. What will packages cost?

E. H. Williams. Twenty-four quart crates cost about one cent per quart, put up and delivered. They are put up in the flat. You can't get a railroad to return these free, and it looks like too much to ask a commission man to furnish them, pay return charges, collect up, etc. I am not in favor of using crates twice.

J. G. Kingsbury. In endorsement of one recommendation of Mr. Williams I wish to say, I think there is much in wives and daughters superintending the packing. They are peculiarly adapted to it. I will give an instance I learned in California. A school ma'm had gone down below San Francisco and gone into the raisin business. She always took the top

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market. I found out why. It was because the lady actually did much of the packing. She knows where to put the nicest raisins.

W. H. Ragan. In regard to a New Orleans exhibit. It is pretty late, but there has been no meeting of the Society sooner; also, the fruit in our State has not encouraged it. Yet I am anxious to have our Society represented, and I think we can afford it, even at this late date. I will move that an effort be made to make such an exhibition.

Dr. Furnas. In correspondence with Mr. Carnahan, he said he wanted to make his last shipment in last month. How about it?

W. H. Ragan. The understanding with Carnahan is that he will furnish transportation if we will furnish duplicates for him to exhibit for the State. Apple, pear and grape exhibition begins the 14th of January. I am not clear as to the terms of the Board of Management, but the rules and regulations seem to require a collection which can be kept in cold storage and brought out as necessary. I consulted Mr. Carnahan in regard to the DePauw exhibit, which can't go till the 11th of this month, and there was nothing in the way, so I think our horticultural exhibit can go. One special fact, aside from my connection with it, is that there are some premiums which will compensate us. We gave $200 to make an exhibit at the Centennial. We got two diplomas and a medal and thought ourselves paid. Now we have a chance for some premiums and medals too. Premiums range from $5 to $250. If we can get some of these I think Indiana would acquit herself creditably. It will cost us only enough to gather the fruit in our own State.

Dr. Furnas. If it is like the exhibition of sorghum it will not cost even that.. The expenses were paid for collecting.

W. H. Ragan. Of course there will be the expense of sending a man to arrange the exhibit at New Orleans.

The motion that an effort in this direction be made was carried.

W. H. Ragan. I think there should be a committee of three or five appointed for this work.

J. C. Ratliff. How would it do to appoint the Presidents of the local societies over the State? They are scattered and would be interested in obtaining a collection.

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W. H. Ragan. It occurs to me to say that parties who contribute to this will not lose the privilege to make individual displays. Premiums are large for one variety.

President. It seems to me there ought to be a committee appointed to take some definite steps.

W. H. Demory. I think if this is left with subordinate societies each President will collect his society together and do what he can. I am trying to arrange to have fruit for both departments. It is for our Society to deposit fruit at Carnahan's, in Indianapolis, and all expenses will be paid, as I understand it. If we make an effort I will do what I can for this Society at Winchester, and will also exhibit individually.

Secretary. I move that a committee of three be appointed to canvas this matter, and if they think practicable, to take definite steps in that direction.

Dr. Furnas. Mr. Ragan says, we received diplomas at Philadelphia. Many were awarded there, but only one will be given at New Orleans, and I don't know that we can make a creditable display. I would rather not make any than to make a poor one. We will have to come in competition with the best States in fruits, and can we do it? We have not more than one-fifth of a crop. I do not consider that our exhibition was creditable at Philadelphia. Michigan spent money and made a creditable diplay. We have but little money.

T. V. Gifford. If the motion was to appoint a committee to bring the subject to this meeting at another session, I am in favor of it, but not otherwise. They should be appointed from different parts of the State.

President. The committee is to ascertain whether this is practicable, and if so, it is to make a collection and prepare it for exhibition.

L. B. Custer. I am opposed to such a committee. I think we can settle it here that we are too poor to make it. We have not been able to make a display at the State Fair. We owe it to the tax payers to make an annual exhibit there.

The motion was carried.

Gen. Stone. I want to make a suggestion. It is said that the society is too poor. If anything of this kind is gone into, we should know it is able, and it should be unanimous. With that coldness, only a part wanting it, it could not be a success under the most favorable circumstances.

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J. C. Ratliff moved a reconsideration, which again opened up the subject.

E. H. Williams. I want to say as a Hoosier, I have some State pride. I look upon this exposition as one of the greatest things in this country. Indiana is older than some of the States and perhaps not as enthusiastic.

Gen. Stone. I move that a committee be appointed, consisting of one from each county society, to consider the practicability of making a display, and report to-morrow morning.

W. H. Ragan. One word in a general way. The condition of our finances has been referred to. I know from my position in the past that we need to be careful. I think we can win enough to reimburse us, but if we do not, and make a creditable display, the Legislature will say: "Here is your money, you can have it back." On the other hand, if we make no effort, they will say: "You have let this opportunity pass; what do you want with money?" The very fact that we have held back and have a balance in the treasury, has not been in our favor. We are holding on to it, and it is prejudicing the Legislature against us.

Secretary. In this connection, in regard to finances, I understand $5,000 have been allowed for each State. In Minnesota they have secured $2,000 for their State horticultural display. It has occurred to me, why can not we do likewise?

W. H. Ragan. I would like to explain what I understand by that. Mr. Carnahan is using $5,000, and he is willing to give us enough to defray expenses of shipping our fruit. This was first given to the exposition, then from it to us, and it is to represent the interests of the State, and not to compete for prizes. Mr. Carnahan said, if we would furnish duplicates for him he would pay our freight. This can't be drawn by this society, but must go for the State. The way they got it in Minnesota was by gathering up fruit to go along with the State exhibit.

J. C. Stevens. If we expect to keep up our society, I would rather make the best display we can and fail honorably, than to do nothing and be laughed at.

E. Y. Teas. Our State is honored by furnishing the General Superintendent of this department there. I think we ought to make a showing.

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The motion was carried to appoint a committee to report to-morrow morning.

Some parts of the State not having local societies, it was taken by consent that some be appointed who do not belong to local societies, that the committee may be a representative body.

The following were appointed: E. H. Williams, J. D. Hampton, T. V. Gifford, D. Cox, J. B. DeMott, J. Fullhart, N. Harvy, D. E. Hoffman, E. Y. Teas, J. Troop, H. Gregg, L. B. Custer.

The meeting then adjourned till 7 P. M.

Evening Session.

Before the time of meeting the Winchester brass band took the stage and played several pieces, after which the President, on behalf of the society, thanked them for their excellent music.

Then the house was called to order, and Prof. J. B. DeMott, of DePauw University, was introduced, who read the following paper:

HOW SHALL WE MAKE FARMERS OF OUR BOYS?

STATE HORTICULTURAL MEETING.

Ladies and Gentlemen:

You have already said to yourselves, "That subject is worn out; why did he not select something new?" I will tell you why: My father, who is spending the winter in Kansas, and who, after fifty years of active life in Indiana, is well prepared to make comparasons between our own State and the further West, often writes that the great question of the Mississippi Valley now is to interest our intelligent, active young men in the affairs of the farm. "All that the West needs," he says, "is that the boys who have brains and education shall stay with the farms, instead of rushing off to the greater competitions of the town and city."

As long as this state of things exists the subject that I have selected must continue to be a live theme; for unless the present absurd idea, that farming is a poky, stupid business, and unworthy the thought of any ambitious boy, is corrected, it will not be many years until our rich valleys and fragrant prairies will be owned by the less deserving but more sagacious emigrant, and our own boys will become dependent upon him.

There are two standpoints from which this question may be viewed:

I. From the side of the parents, who are to do the training, and

II. From the side of the boys themselves.

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Some years ago, in a local paper in the northern part of Indiana, there appeared a commanding article upon the proper training of children, and particularly the care of babies. The article attracted a good deal of attention, for it was written in a tone of authority. It was especially bitter in its denunciation of all present methods, and many parents felt disheartened to find how sadly they had thus far failed to give their children even the first principles of a proper training. Not long after the article appeared, however, it was discovered that the writer was a crusty old bachelor, who never had brother or sister, and who could not hold a baby in his arms without letting it slide through its robes or tip upside down. This fact, quite naturally, spoiled the effect of the article, because a week's practical experience with a strong-voiced, fat baby, in hot weather and at teething time, would have upset his fine-spun notions and have taught him more than he had ever known before.

So, to avoid that old bachelor's blunder of giving advice not based upon experience, this paper will discuss the question in hand from the boys' standpoint, depending upon a vivid memory of the hopes and disappointments, aspirations and discouragements, which go to make up one's own boyhood; for the five-year old at home, although he now shouts,

"A farm is the place for me,
And a farmer I will be,"

is yet not old enough to be a practical demonstration of the correctness of the following views from the other side of the question.

Allow me to lay down a ———

Firstly. There is more danger of creating a dislike for the farm by giving your boy too little than too much to do. I can not believe this popular, modern doctrine that our boys are leaving the farm because it is all work and no play. The seeds of sloth and sin grow rankest in idle minds.

As I glance through my library window there passes a man whose experience in this direction has been a sad but useful study for me. He drives a pair of hard-worked, hungry-looking horses, and his wagon, like himself, has almost served its time. His face has a knitted, anxious cast, his clothing is of the roughest sort, and his hand clutches lines and whip with the feeble nervousness of one whose body, through ill keep and fatigue, is rapidly losing its power to obey. I remember what this same old man once said to me: "The old woman and me are havin' a mighty hard time of it, but we're a workin' for our childr'n, and as long as we can keep agoin' we're not goin to see them work like we've al'ays had to. We'd rather wear these old bones out than let them struggle like we've done. No, sir, they don't do only just what they feel like doin', and that's just what we're workin' for."

Heroic old father! Noble old mother! Such a sacrifice as they are making of pleasure, comfort, even, inch by inch, of life itself, surely ought not to be in vain. Let us see. The oldest boy is just of age. He is known as a professional loafer; a hanger about the street corners; a dry goods box young man; always whittling, but never making anything. Always smoking—sometimes drinking—and offering to make heavy bets, although it is well known that his spending money all comes out of his father's hard-earned wages. Without education because, as he says, "the teachers always had a pick" on him, and "the books had no sense in them." So, when a lesson was difficult, the kind-hearted father would say to the teacher: "Let him skip that, or drop the study; he does not seem to like it very well, and, of course, if he doesn't like it, it will do him no good." No trade, no business habits, because everything he ever tried had hard work about it, and that did not

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suit him. When an employer would insist upon strict business service, the father would come to his son's rescue with some such reflection as this: "I should li e so much for my boy to learn business of Mr. B. The house is well managed, and Mr. B. is a man of fine business habits, but if it is too hard on the boy, he may try something else, for I can't see him drudge as I have done." So he grew up without any regular habits of any sort, except going to his poor old mother's well-spread table for his meals, and coming in late at night to a tidy bed-room, unless, on account of an occasional spree, he sometimes stayed out—who can tell where?

The two younger brothers are naturally bright and active, but for the want of a firm discipline, which would teach them to appreciate the value of habits of industry and self-command, they are rapidly growing up in idleness, insubordination, untrustworthiness, and cunning dishonesty.

"Let them have a good time while they can," says the kind old father, "I wouldn't have them work like I had to when I was a boy."

You would be astonished to know how many bright American boys are to-day growing up under this same delusion. Growing up into a life where it takes habits of long, severe, patient hard work, and lots of it, to win, without any preparation for it whatever. Growing up with the idea that work degrades and stunts the man, and that drudgery is intended for the hireling and the slave; although no plainer truth ever stood out on history's page, and civilization has taught nothing more surely than that hard work is the price that must be paid for every real achievement. Statesmen, capitalists, benefactors, scholars, have struggled up, most of them unaided and alone, through hours, and days, and years of ceaseless toil, eager to turn a hand to anything, no matter how hard the work might be, and *stick to it* till it was done, and done well. Work is the measure of the efficiency of all things, and the farmer who tries to relieve his children of its burden, under the delusion that he is conferring a blessing on them, is really not only driving them away from the farm, but is taking the first step toward robbing them of an even chance of success in any other line, and their after failure will come back to him in ingratitude and censure.

"How sharper than a serpent's tooth it is,
To have a thankless child."
—*Shakespeare.*

Secondly. But merely having plenty to do will not solve the difficulty. Boys must be taught to do all that they do skillfully. They would remain on the farm if they understood the science and the skill that are necessary to make farming really successful. The boy who has taken a prize for having grown the best acre of potatoes, or field of corn, or basket of grapes is in no danger of losing his taste for the farm. It is innate in us all to take a lively interest in whatever we can make *succeed.*

Did you ever make a good, springy arrow, mold on and temper a ferrule in your very best style, and then send it crashing into the face of a fine clock? Frightened, of course. You had no idea you could shoot so well; but while you fully realized that you would suffer the consequences, you could not help admiring the way that arrow drove into those wheels, knocking the escapement this way, the pendulum that; doubling the face-wheels into each other; cutting a cord and sending the striking-weight crashing to the bottom of the case; wedging the whole movement out of place; splintering the back, and halting only when it had bedded itself in the wall beyond. After you had duly suffered for selecting such a precious mark, you could not help slipping around to the alley where that faithful arrow had

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been thrown, and, through your tears, taking it up tenderly, with never a thought of chiding it for the pain it had caused you, but full of welling pride that one little arrow could do so much and that you made it.

The whole world is always ready to applaud success.

Have you ever gone down to Barnstead Downs on Derby day? There you might easily believe, as a Lancashire man would express it, that "(H)all London is braken loose," and is rushing toward the sea with something of the impetuosity of the Gaderene swine. Not that the Londoner is fond of sea water, but if it were flavored with malt instead of salt he would be, for, though rained upon three hundred days of the year and drenched within with his three pints per day and several extras on holidays, the Londoner is always dry—constitutionally dry. But such streams of people! Why do they come? Why do 'busses and cabs, carts and four-horse drags crowd across London bridge, and Blackfriars, and Westminster, and Waterloo bridges, until one would think that all Middlesex was being tipped up and poured through these faucets into Surrey. All the way up to Chelsea and Batterses, do these mad streams of humanity rush across. Even the gray-haired Twickenham ferryman jumps into his little boat as spryly as if he were as young as he used to be, and louder, merrier than yesterday, sings:

"O hoy! ye ho! ho ye ho! Who's for the ferry.
The briar's in bud, the tide's going down,
And I'll row you so quick, and I'll row you so steady,
And 'tis but a penny from Twickenham town."

Why do long, loaded trains steam into Epsom every half minute, by the Brighton Rail and Great Southwestern, and go out empty? Why is Parliament adjourned to-day, and business suspended in mid-week? Why drives the profligate Prince of Wales and his faithful wife, six-in-hand, galloping past the Elephant and Castle, down the Kensington Lane, into Wadsworth road? Gigs and dog-carts must clear the track or go to splinters; and human folk are trodden down like weeds, for they have no rights that mounted royalty need respect.

Is it to get the fresh June air that these people, weeks ahead, charter all the horses within forty miles of London and drive at break-neck speed toward Epson to-day? No, the air is cold and raw, and one would feel much more comfortable indoors, before a blaze. Perhaps it is the sunshine they're after. No, it is pouring down rain as usual. Why, then, do they come? Ah! It's Derby day! Ten thousand of the nobility sit in the grand stand, while twenty times as many more, of all grades and degrees, throng the downs below, to see some horse—they do not care whether he be from America or the Sandwich Islands, handsome or as ill-looking as the veriest cob in London, though by it a hundred are cruelly, inhumanly beaten and driven to their death—to see some horse that can win the Derby cup against the world Ah! man worships achievement.

Thirdly. Farmers themselves must stop grumbling about their hard lot. It is a habit that has grown into a disease, and boys, from the time that they get out of the cradle until they are grown, hear it continually reiterated that farming is all hard work and poor pay, without any advantages or attractions, until it is no wonder that they leave home as soon as they get old enough to shift for themselves. What a mistake! Where in the world, I would like to know, can you find a more cosy, peaceful, healthful, happy little kingdom than a model American farm. Of course, occasionally there is a refractory subject that needs court-martial, such as the defiant gander that will not let you wear your red mittens out of the house, or a pet calf that watches his chances to try to drive your head through the barn door, but these are only innocent diversions that are evidently intended for the

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amusement of the other geese and colts and calves that stand around and stare at you in a puzzled yet appreciative sort of way, without any idea other than that you are still king of your dominion.

There is an old saying that if a boy is real smart, "I'll make a lawyer of him, and if he is only tolerably so I'll make a doctor of him, but if he is a stark fool he must be a preacher;" but many farmers act as if they thought the very dullest boys are good enough to farm, and that too without any education whatever. They forget that there is a wonderful, ever changing mystery to be solved in the field, the pasture and the orchard. How is it that nature breathes upon the mellow soil, and from the same elements spring the white, hard, fine-grained wood, the velvet green leaf, the perfumed, rosy flower, and the luscious fruit? It is the work of master minds, not dullards, to stoop so close to Nature's breast that they can hear her very heart-throbs as within her embrace inert matter springs into life and fragrant beauty.

A place close to the lakes where I lived when a boy, was the home of an old-time pioneer hunter and trapper. Many a time had he tracked the bear and driven the hungry wolf from his blanketed door, and while only deer, duck, muskrat, mink and an occasional otter remained, he lived a happy old age in his log canoe, going the rounds of his traps and occasionally taking a bead that never failed on a fine young buck or doe. One day while I was admiring some fresh, velvety fur stretched on boards and hung all over his cabin, I noticed that he was intently scraping a curiously-shaped horn. I asked him what he was doing, but he only bent the closer over his work, until the tail of his coon-skin cap would brush his hand at every stroke. Every little while he would examine his work carefully and then set to scraping again more vigorously than ever, until finally I could see the shadowy outline of a dark substance within, and then I knew he was making a powder horn through whose shell-like walls he might see the powerful compound within, and I thought how like is the patient thoughtful student of nature who is ever scraping away, scraping away at the shell of earth, or wood, or leaf, or flower, or fruit, that hides the shadowy thought of Him who spoke them into being.

Gov. Joseph A. Wright used to say: "If your son needs a bank into which to deposit his capital, show him a bank of earth, if he wishes a field in which to display his *talents* show him a field of corn;" and it was well said for there is not one of the so-called learned professions, that offers to-day more inducements, to clear-headed, well-trained, studious young men, than do the herds, the fields, and the orchard.

It seems almost like magic to see the harvesters go their merry rounds, keeping time to the falling sheaves. One is reminded of the days of enchantment, when but yesterday stood a great field of nodding grain, that to-day is fast asleep and tucked away in monstrous ricks and mows.

And any young man who is willing to work and think on the farm is as fortunate as the Arab in that wonderful ancient story which might have sprung from the original, mythical Semetic chief of the Arabs himself, and from him have skimmed its way down the centuries, pleasing alike to the mystery-loving Mahommed and the great Caliphs of Bagdad, as well as to their wandering, fez-wearing, blanket-robed, ill-eased subjects, whose restless dreams of the days of enchantment are so vivid and weird that one could almost believe their imaginings to be the shadowy traceries of impressions made on their souls in a life prior to this, which they might have lived in some spirit Kaba where, Allah be praised, wish is law, and fancy, king.

But to the story.

It is of a restless Arab, who, one day, weary and disconsolate at his luckless

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existence, was plodding along the dusty way between the Euphrates and Bagdad, when his foot suddenly struck a little black bottle. As it tumbled along the way in front of him, a smothered voice called out, "Let me out, O, do let me out!"

"Can't do it," replied the delighted Arab, who, wiser than many a later-day sage, instantly knew his prize. "Can't do it unless you will promise to take that mountain away from between me and the city."

"Yes, I'll promise."

"Will you trade my hut for a palace? Will you make me rich with gold?"

"Yes, yes, anything, if you will only let me out."

"Do you swear by all the genii and the great magicians whose spell only can subdue them?"

"I swear."

Then the Arab with difficulty found a secret spring, which touching, the cap of the bottle flew open, and a thin column of blue smoke went curling its way up to salute the sky. As it disappeared a tall giant stood before the astonished Arab. Two or three strides of several miles each, a grip, a tug, and a toss, and Mount Shahak was uprooted and tumbled behind the city of Bagdad, where any traveler may behold it to this day. Then the giant blew the whole valley full of smoke, and as it disappeared a magnificent palace had taken the place of the Arab's greasy tent. Then he plucked some palm leaves, and writing upon them mysteriously, he tore them into little bits and puffed them into the sky. As they descended they became long lines of monstrous slaves which issued forth from every valley and mountain pass, and filed their way slowly down into the palace. Each one carried upon his shoulder a great sack filled with gold and precious stones, which he deposited within and at once lay upon it and became a sack as precious as the one beneath, until from basement story to topmost tower the gorgeous edifice was full.

"Come and see," said the giant. "Have I kept my promise? Am I free?"

"Aye, aye," exclaimed the Arab, "and right royally do you deserve your freedom."

"But," said the giant, "I have been so long undiscovered in that little black bottle that I do not feel at home anywhere else; so when you want me you will know where to find me."

So without more ado, he doubled himself up again, and the thin wreath of smoke went twisting its way down into that black bottle again, and snap went the stopper.

What that black bottle did for the wandering Arab will be done in a reasonable degree for every young man, who, with a true heart, a clear brain and a willing hand undertakes to make a farmer of himself; and may the homes of this State Horticultural Society of Indiana, its prosperous branches, be full of such young men.

Then the Secretary read Superintendent Holcombe's paper.

To the Members of the Indiana Horticultural Society:

Having been requested by your Secretary to present to your honorable body at your December meeting an account of the celebration of Arbor Day by the schools of Indiana, I take pleasure in making the following report:

The first meeting of the joint committee was held in the rooms of the Department January 31, 1884. A day was appointed for the celebration, and it was arranged to issue a circular to the city and county superintendents of the State setting forth the object to be attained and the plan to be pursued. Later, a gener-

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ous offer of flower seeds was made by Hiram, Sibley & Co., seedsmen, of Rochester, N. Y., and was thankfully accepted. The circular was issued in February, and contained the suggestions and recommendations of the committee. With a view to bringing the matter before the people, I secured the services of Hon. B. G. Northrop, of Connecticut, who delivered a series of lectures upon the subject in various parts of the State. The educational press, and many of the city and county papers lent very efficient aid in the work of popularizing the plan. Governor Porter was requested to contribute to the interest of the day by writing an address. A programme of twelve pages was prepared at the Department, containing the Governor's address and one by the Superintendent of Public Instruction, a few selections of poetry, and a compilation of aphorisms suitable to the occasion. Three thousand copies of this pamphlet were distributed, on application, to county and city superintendents, and to teachers of the country schools.

The day observed was April 14th. The weather was favorable to attendance and work. The exercises were conducted in the school houses or on the grounds, and preceded the work of planting trees and shrubs, making parterres, laying sod, removing superfluous trees, pruning, etc.

There being no arrangements made for formal reports of the celebration, it is impossible to state at how many school houses the day was observed. As an estimate, I should say that the country schools of about fifty counties participated pretty generally in the exercises and in the work, and that the graded schools of fifty or more towns and cities observed the day independently. This estimate is based upon the number of requests made by teachers and superintendents for programmes, which requests were generally accompanied with a statement of intention to join in the celebration.

The interest manifested by the people of other States in the success of the Arbor Day project in Indiana was very marked, and another reason has been given for the influence which our State exerts in an educational way upon the country at large.

Conforming to the wishes of a large number of teachers and school officers, and in accordance with my own opinion upon the subject, I included in the recommendations of the Outline of Township Institute Work for 1884 a suggestion that the country schools unite in the celebration of an Autumn Arbor Day. Being further requested to appoint a specific time, I issued a circular appointing for the purpose the Fourteenth of November. Letters received from various parts of the State give assurance that the day was profitably spent in many localities in the beautifying of the school grounds, and in literary exercises appropriate to the work.

Yours very truly,

JOHN W. HOLCOMBE,
Superintendent of Public Instruction.

November 17, 1884.

Then Prof. Latta, on behalf of the committee appointed last year to bring the subject of school-yard decoration before the State Teachers' Association, made the following report:

To the State Teachers' Association:

At the late meeting of the Indiana Horticultural Society a paper was read on the "Ornamentation of School Grounds." The discussion which followed clearly showed that the horticulturists of the State not only realize the need of reform in the care and embellishment of school grounds, but are also desirous to take immediate steps to improve the same.

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With this end in view a committee was appointed to bring the subject before the State Teachers' Association, and solicit co-operation in devising and executing plans for ornamenting our school grounds.

Said committee respectfully beg leave to submit to the honorable body of Indiana Teachers the following facts and suggestions:

1. Our school yards are too generally the most neglected spots along the highways; in the great majority of cases they are destitute of ornamentation of any kind; almost without exception they show a sad lack of neatness and taste in their care and arrangement, and, in not a few instances, they are positively repulsive in their appearance and associations.

2. These neglected, forbidding school yards exert a powerful influence—always unwholesome, sometimes pernicious—on the susceptible minds of the school children.

3. Children naturally love and cherish the beautiful, and, hence, will surely be benefited by daily association with objects of taste and beauty in and around the school grounds.

4. In many cases in this and in other States school grounds have been greatly improved through the untiring efforts of a single enterprising individual. Hence,

5. School patrons are not generally averse to ornamenting school grounds, though they ofttimes need intelligent guidance in their efforts for improvement.

6. It is quite possible, therefore, for wide-awake teachers to secure general improvement and some degree of embellishment in the school yards of the State.

7. Work of this kind, though requiring pluck and perseverance in the teacher, will cost little money: public spirited citizens will give plants and vines, trees and shrubs, and enterprising seed firms will donate flower seeds to help on the good cause.

8. The Indiana Horticultural Society pledges an earnest support to all feasible measures for rendering the school yards of the State more attractive and more subservient to the true objects of an education, and would be pleased to co-operate through their committee with the State Teachers' Association in devising and maturing plans for the accomplishment of this end.

The committee would suggest:

First. That this association consider the desirability and feasibility of concerted and co-operative measures for bettering the condition of our school grounds.

Second. That in case such action is favored a committee be appointed by the association to act jointly with the committee of the Horticultural Society in deciding upon such immediate steps as may be deemed practicable, and in preparing well digested plans for systematically carrying forward the work, which shall be reported to their respective bodies at their next annual session.

Submitted with great respect by the committee,

W. C. LATTA,
J. G. KINGSBURY,
C. M. HOBBS.

Dated December 26, 1883.

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INDIANA ARBOR DAY CELEBRATION.

COMMITTEE.

JOHN W. HOLCOMBE, Superintendent Public Instruction, *Chairman.*

From State Horticultural Society.
C. M. HOBBS, Bridgeport.
J. G. KINGSBURY, Indianapolis.
W. C. LATTA, Lafayette.

From State Teachers' Association.
C. W. HODGIN, Richmond.
W. M. CROAN, Anderson.
W. H. ELSON, Rockville.

At a meeting of this committee, held in the rooms of the Department of Public Instruction, Januaty 31, it was recommended that the second Friday in April be set apart as Arbor Day in Indiana; that the day be observed in the various schools of the State by appropriate exercises, and by the planting of trees, shrubs, etc., and otherwise ornamenting and improving school grounds.

The present condition of the great majority of the school grounds of the State evidences the fact that far too little attention has been given them—much less than their importance demands. Upon these school grounds character is moulded, and here are formed habits and tastes which mark the future citizen. Here not only intellectual, but also physical, moral, and aesthetic culture is to be given. Attractive surroundings have much to do in this cultivation, and their influence in creating a love for the beautiful and an appreciation of the refined should not be underestimated. An appreciation of the native woods of the State is not the least of the beneficial results. The committee urgently recommend the enlargement of school grounds. While land is yet comparatively cheap, it is the duty of Trustees to purchase lots sufficiently large to provide abundantly for play and exercise—one acre is little enough, while two would not be too much.

The following trees are well suited for use on school grounds and are found in every locality in the State: Hard maple, soft maple, elm, ash, American linden (basswood), catalpa. For flowering, the following are well adapted: Dogwood, redbud, crab-apple, haw. Other trees may be found desirable in many localities. The best specimens only should be used. Evergreen trees, hemlock being most suitable, and other valuable varieties, if desired, can be had of any nursery. It is desirable to plant trees and shrubs singly and in clusters, rather than in straight rows along walks. The shape and size of the grounds must be considered in the planting, as well as in the selection of suitable varieties.

While it is thought that the pupils in cities and towns will have best opportunity to enjoy the cultivation of plants and flowers, considering the seasons in which the various schools are in session, yet the following proposition applies as well to country as to city schools.

The seed firm of Hiram, Sibley & Co., of Rochester, N. Y., make the generous offer to send collections of flower seeds, free of charge, to such of the schools of Indiana as will use them properly in the celebration of Arbor Day. That the schools may avail themselves of this offer without subjecting it to abuse, and in order to prevent duplication of applications for the same schools, or the neglect, through divided responsibility, to make any applications for other schools, the Superintendents should make definite arrangements for securing a proper supply.

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It is sometimes, though rarely, the case that schools suffer from too much shade. It will be well to consider the removal of dangerous and unsightly trunks, and of useless and noxious trees and shrubs, where found. The construction of tasteful parterres should receive attention.

The Committee is well aware that some difficulties are in the way, such as a short term in some localities; yet the importance of the matter warrants the belief that much may and will be done in this direction. The opportunity is rare for Indiana to make another advance step in her already distinguished educational progress.

The details are left to each Superintendent to arrange. The aid of local newspapers will be valuable in calling general attention to the plans arranged, and to the proposition given above. An energetic and judicious effort on your part will do much toward awakening not only teachers and pupils, but also the people, to the importance and necessity of thus beautifying school grounds. The pupils should be enlisted in the work, and pupils, classes or grades should be allowed to plant their own trees. Nothing can be more appropriate than the planting of memorial trees as a token of affectionate remembrance of the pupils and teachers who may be called by death from the scenes and the associations of the school.

A good horticultural newspaper or floral catalogue will be of great assistance in giving directions as to planting. The Committee deem it proper to emphasize the importance of proceeding with intelligent plans and directions, and only upon a study of the grounds and the careful formation of definite plans for improvement.

A programme of appropriate exercises will be sent out by the Department of Public Instruction, containing addresses from the Governor of the State and the State Superintendent.

WILLIAM H. ELSON,
Secretary.

JOHN W. HOLCOMBE,
Chairman.

W. H. Ragan. I hope this will go on until our school yards present an appearance more inviting and elevating, so children who meet there will get some idea of the scientific adornment of home.

Secretary. As one of the committee from this Society to the State Teachers' Association, I was present at the Association when this subject was introduced. It was gratifying to the committee to see the readiness with which it took hold of the subject. There was an interesting paper read by W. M. Croan, of Anderson, Madison county, on the school-house and its surroundings, and it seemed to prepare the way for the work of the committee. There were a number of speeches made in favor of entering upon the work.

J. C. Ratliff. This seems to be exactly in line with the work of this Society, and from statements made the committee has just commenced its work, but with very good success. It occurs to me this committee should be continued. I don't think

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it would be good policy to drop the subject at this time. I move that the committee be continued, to co-operate with the committee of teachers, and report next year.

Mrs. Hodgins. Much has been done. I know many teachers sent for flower seeds, but one reason more were not planted was that it required too much expense, and the children or teachers did not have time to do the work. There ought to be some one hired to make the beds, etc.

L. B. Custer. At the Logansport school many planted seeds. I would differ from Mrs. Hodgins about hiring the work done. I think the students take an interest, from the fact that they do the work.

Mrs. Hodgins. Where ladies are teachers, they can't make the beds, and the pupils will not do it.

L. B. Custer. At our place they hired some of the rough work done.

Professor Latta. I feel that it will not be enough for us to refer this to the committee and think they can carry on the work. You must feel that you are an educational institution, to a great extent. We must keep at the work, but if you continue the committee, you should give them some instruction. It occurs to me it will be well to have some definite plans. It ought to be more than reports and mere suggestions. We are after practical work.

Dr. Furnas. I am in favor of continuing the committee. I want to hear what becomes of the trees. Did you ever hear of trees dying or being broken down? Boys must play. If I was going to teach I do not know which I could better do without, desks or play-ground. I think the committee ought to be continued and tell us how many trees die. I have had some experience. I furnished trees for a school yard once, and I don't think they can show a decent tree now. I don't like the idea of children looking at some one else doing the work. They will take more interest in it if they do the work. The trees need to be protected. When we planted trees in our court-house yard I got an elm. It did not cost me anything, but it cost me a dollar to put something around it to protect it. They must be protected. They must have enough ground so the students will not injure the trees in playing.

Secretary. That was embraced in our suggestion, and if it was not sent out in the circular it was discussed. We recom-

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mended that additional ground should be procured. Where there is not room for play there is not room for much adornment.

The motion was carried to continue the committee to co-operate with the committee of teachers and report next year.

Prof. DeMott. I am sorry I can not be here to-morrow; but I want to say a word about the next place of meeting. I do not want to say anything against other places more deserving. Two years ago the Society went to Putnam county. It was very cold and disagreeable. I do not think the Society enjoyed itself as it should. I think we ought to redeem ourselves. I want on the part of the people, and especially of the faculty of DePauw University, to extend a cordial invitation to Greencastle. We would like to not count two years ago.

N. Harvey. The professor very kindly asked for the Society to go to Putnam county. We think we out to have it at Bloomingdale. On the part of our local society I extend a cordial invitation to our place.

Dr. Furnas. Notwithstanding the cold weather at Greencastle, I think we had a good time. I am rather inclined to accept Friend Harvey's invitation. Bloomingdale is a good place, and they have a good society. I would be glad to go. I enjoy going to Greencastle, with an appreciation especially of the college. Our people said for me to say, when you can, come to Danville; but I think we would better evangelize.

J. G. Kingsbury. I think it is about time to meet at home again. The meeting has not been held at Indianapolis for a long time.

Dr. Furnas. You have not your house covered yet.

J. D. Hampton. I will extend an invitation from Richmond.

J. C. Ratliff. I wish to extend an invitation to Purdue. President Smart was anxious it should go there.

Prof. DeMott. Under the circumstances, I will withdraw the invitation to Greencastle.

The invitation to Indianapolis was also withdrawn.

Prof. Latta. President Smart expected to be here or he would have told me to invite the Society. He had it on his mind.

Prof. Troop. We are going to try to do something in the way of horticulture, and would like to have the Society come to Purdue.

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After several ballots it was decided to meet at Purdue.

Secretary. There is one thing important enough to speak of here, and that is that the local societies should elect officers before this meeting, so the officers' names for the ensuing year will appear in our proceedings.

The question-box was then opened.

Which is the better time to prune grape-vines, in the spring or autumn?

Answer. Autumn.

Will the persimmon succeed in this climate?

Answer. Yes.

What is known of the wooly aphis, working upon maple-trees?

W. H. Ragan. I know it is a serious pest. It works on other trees. It is a scale-like insect, about one-twelfth of an inch in length. It is covered over with a house like a turtle shell. It works very soon after hatching. After the parent insect dies, the scale comes up and shows the insect under it with a "cottony" substance. This substance takes with it the eggs from tree to tree, when blown by the wind. In many places trees are damaged seriously by it.

J. C. Ratliff. Does it affect grape-vines? We noticed last season these tortoise-like substances on the vines, and I thought perhaps they might be the same insect.

W. H. Ragan. In the Mississippi Valley report, in Prof. Forbes' paper, it is described as affecting strawberries. I have not seen it on grape-vines.

J. G. Kingsbury. I can't say about grape-vines, but it affects apple-trees and others besides soft maple. We have had it in Indianapolis. It has not destroyed any trees, but has weakened them, and unless we can do something for them, they will be destroyed.

Secretary. There was a curious fact brought to notice at our last local meeting, by Frank L. Dougherty. He made the statement that bees fed on this insect, or its excretions, for lack of something else.

W. H. Ragan. The first observation I gave it was on that account. There was honey dew deposited on them. They had not fastened themselves down yet.

Question: What insect affects wheat this year?

Prof. Troop. We sent out circulars to find out just this point.

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Most every answer we got said it was the fly. Whether they meant the Hessian fly, I do not know. Many sent specimens of the wheat in which I found the fly and other insects not the fly at all. The persons sending them thought it was the fly. It is not yet thoroughly known. We have at Purdue the assistant U. S. entomologist. He has thirty-five different species working on wheat this year. The Hessian fly is working on early sown wheat.

W. H. Demory. There was a circular handed to me in regard to this. I took the pains to examine two or three times. I believe it is a fly, but not what we have always called the Hessian fly. It might be called a saw fly. If examined closely it is seen to have joints. There are other insects we call wire worms. They are white. This insect which works on wheat is the same insect that has worked on the upland corn. I am not able to name it. I think it takes its origin from a fly. It is smaller than the Hessian fly.

J. G. Kingsbury. The white grub worm has been destructive to some of the wheat, and I think they work on corn.

Prof. Troop. The wire worm is how large? [Answer, one-fourth inch.] If this is the insect working on corn, I think you will hear more of it next year. This is one point I wanted to get out of these circulars. I know most farmers do not know these insects. I have requested that people send insects with wheat, but few have done so.

Then the society adjourned till 9 o'clock Thursday morning.

Morning Session.

The house was called to order by the President at 9:30.

While the audience was collecting, some miscellaneous business was taken up.

By consent it was decided that E. Y. Teas' paper go into the proceedings without being read, he having been called home on account of sickness.

Then the paper by Daniel Bulla was read by J. C. Ratliff.

Mr. Bulla is one of the pioneer citizens of Wayne county, and is interested in horticulture. His father was the first man to plant an orchard in his county. Mr. Bulla could not be present to read his paper because of an injury from a fall.

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THE FIRST APPLE ORCHARD PLANTED IN WAYNE COUNTY—REMINISCENCE OF EARLY AND LATE ORCHARDS OF WAYNE COUNTY, INDIANA.

In 1806 my father moved to Wayne county. In 1808 or 1809 he planted some thirty or forty apple trees, most all seedlings; a few grafts, such as the Cherry Cheek, Sweet Bough, Maiden's Blush, Cumberland, Spice, French Pippin, Vandever, Rhode Island, Pearman, and Hughes's crab for cider. Some of the seedlings were splendid. The trees grew fast; were healthy. When they came into bearing, the fruit was large, smooth and perfect. I have seen the Maiden's Blush loaded with the largest and finest the country ever afforded. The apple crop was as sure as a corn crop is now. We had peaches then in abundance. Later he set out a large orchard--about seven hundred trees—from a large nursery he had then, about 1825.

I was then large enough to carry the trees and hold them in place while he filled in the dirt. They all grew fine, and in 1835 the young orchard had the finest apples there was to be seen in the country. The varieties were numerous for that day. There was the French Pippin, a large, juicy apple; the old Butter apple, then Gabrele, then the Preastly, a splendid winter apple; the Newtown and White Pippin. Then we had the Fall Pippin, a large, yellow apple, the best to dry in the orchard; the Green Pippin, a good winter apple; the Nut Large, a large early sour apple; then the Red Winter Sweet, a splendid bearer and good for apple butter; the Princess Harvest, the Lansingburgh and White Winter Pearmain, and a great many others I have forgotten the names of. The orchard was cultivated in corn for several years and then left in grass. About 1839 I cut out the seedling trees, and plowed the orchard and sowed it in flax. The trees done well, and had larger and better apples than for years. The apples began to get wormy in 1858. The span worm attacked the trees, eating all the foliage off while they were in bloom. Since then the trees have not borne good crops. Then the leaf louse, and numerous other pests. A fungi is about the worst of all to make them knotty. The hard winters have killed nearly all the trees in the old and new orchards, except those on high land. I have set out several trees in the last ten years, and only a few seem to do any good. There is a leaf louse that does a great amount of damage to the apples and plums. We used to raise peaches here by hundreds of bushels; now we can not raise the trees, all on account of the hard winters. We have to plant the hardiest of grapes, and they will all be killed once in a while. The May cherry is about the surest fruit crop we can grow. I would recommend Snyder blackberry and Gregg raspberry, and the Sharpless strawberry.

Yours respectfully,

DANIEL BULLA.

W. H. Ragan. It has just been suggested to me by a lady that we had as hard winters then as now, so this winter killing is not exactly due to extreme cold. We once raised fine plums and cherries, we can't do it as well now. It is due I think to climatic changes and increase of insects.

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J. D. Hampton. I want to remark that the season of '81 was worse in Wayne county than in the northern part of the State. I inquired how it was. They told me there the ground froze before the snow. Here the snow fell before the ground froze, and kept it warm so the trees could not stand the cold. It was due to the condition in which the cold caught them.

H. Gregg. I have an opinion of my own. I ascribe it to another cause, that is the character of the fall preceding the freeze. It was wet and warm and then the cold coming on caught the trees in a sappy condition. In other localities where it was dry and they were not growing, they were not killed.

Dr. Furnas. You are both right.

J. D. Hampton. He referred to local destruction. I want to say one thing more. My orchard that year was full of apples, so they made less wood and were not so sappy. They were not hurt like most of our orchards. Another point: I think we ought to set out new orchards every fifteen or twenty years. We would have one coming up while another is in its prime, and another going out. In this way we can remedy this thing of some varieties running out. These two things I think are very important.

Some varieties make wood twice as fast as others. Every orchard has a variety of soil. The trees of slow growth should be set in richer parts, and the strong growers in thin land. There is a rich swale in my orchard where I have Trenton Early and English Hagloe. The former were all killed, the latter not hurt.

Then the committee on resolutions made the following report, which on motion was adopted:

Resolved, That the thanks of the Indiana Horticultural Society are due and are hereby tendered to the officers of the Grand Rapids & Indiana; the Cleveland, Columbus, Cincinnati & Indianapolis, and the Cincinnati, Indianapolis & Lafayette railroads for courtesies extended to our members in granting commutation of rates on coming to and returning from this meeting, and that the Secretary be authorized to transmit a copy of the above resolution to each of the above companies.

Resolved, That we fully appreciate the fine music rendered by the Winchester Brass Band gratuitously given for the benefit of this Society.

Resolved, That the citizens of Winchester and vicinity are entitled to the cordial thanks of every member of this Society for the generous hospitality extended to us during the time of holding our meeting, and that we trust they may realize the promise that "It is more blessed to give than to receive."

JOS. C. RATLIFF,
JESSE C. STEVENS,
HELEN V. AUSTIN.

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The Committee on Exhibits made the following report:

EXHIBITS ON THE TABLE.

Your committee to whom was referred the exhibits of fruits and other articles on the table, respectfully submits the following report:

Owing to the scarcity of winter fruits, especially apples and pears, the fruit show was not as large as we have witnessed at former meetings. A few of the leading varieties of apples, such as Ben Davis, White Pippin, Jersey Black, Vandever Pippin, Wine Sap, and Peck's Pleasant were on the table. Tulpehocken was represented by a few large and showy specimens. A number of seedlings claimed to be new, and more less handsome. One of these by H. Gregg, looking somewhat like Michael Henry Pippin, was conspicuous, and said to be of fine quality when ripe, which would not occur until February or March. Jacob Hampton, of Wayne county, presented four varieties not identified, but which he said were good for market. Albertson & Hobbs exhibited the Salome. This is to us a new apple, about which there is much said in some places. It was not quite so large as we were anticipating. Not being ripe we could not judge of its merits as to quality. The reputation that it has among some of the most noted fruit-growers of Illinois should entitle it to a respectable trial in Indiana. This firm also exhibited a large striped apple marked "Indian," which originated in Orange county, this State. The Clayton was on exhibition, and had its friends and foes.

A few pears, such as Beurre Easter and a late coarse variety recommended for cooking purposes. Some dried apples, dried on the Boswell drier, were creditable. A solitary plate of Catawba grapes bore ample testimony of the superior quality of that variety. A few jars of canned fruits in good condition, a nice bunch of seedling chrysanthemums, and a very few pot plants completed the exhibition.

All of which is most respectfully submitted on behalf of committee.

A. FURNAS.

The Committee on New Orleans Exhibit made the following report:

The committee to whom the subject of making an exhibit at New Orleans was referred, would report in favor of making such exhibit, and that this Society send a man to the northern counties of the State to make a collection of apples, and that $50 be appropriated by this Society to defray the expenses of making such exhibit, and that the local societies be asked to assist in making the exhibit. All collections to be sent to Indianapolis, to some person selected by this Society, to receive and forward the same.

On behalf of the committee,

T. V. GIFFORD,
L. B. CUSTER.

W. H. Ragan. I would like to have the Society understand that there are some things which can not be known yet. I do not know whether the display can be made without space having been engaged. I think it should be encouraged, but we ought to know more definitely before much money is spent. This condition grows out of some misunderstanding as to when the Exposition is to open. I will be in New Orleans in a few days, and can find out about it.

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D. Cox. I think, perhaps, it would be well enough to consider this, and wait until Mr. Ragan informs us before we spend any money.

The report was adopted.

Secretary. It seems to me there ought to be a committee appointed to have charge of this.

Gen. Stone. It is thought best not to spend much money until we find whether we can make an exhibit. I move the whole matter be referred to the President and Secretary, and they will find out first about its practicability.

The motion was carried.

Then Prof. Butler read the following paper:

CONFLICT BETWEEN NATURE AND CIVILIZATION.

Not being a practical horticulturist, I have had considerable difficulty in deciding upon a theme that will be of interest to the intelligent ladies and gentlemen that constitute the Indiana Horticultural Society. It is true I have been a member of the Randolph County Society for more than two years, and have taken a deep interest in its proceedings; it is also true that one-half of the earlier portion of my life was spent upon the farm, yet I make no claims to a practical knowledge of either horticulture or agriculture, and would not presume to enlighten this audience on the subject of fruit growing, but I have some random thoughts on the subject announced, which I trust will not be wholly uninteresting to you.

Several years ago Sir William Armstrong made a careful investigation as to the time the coal supply of England would last at the present rate of consumption. Making due allowance for all possible economies, he arrived at the startling conclusion that in two hundred years England will exhaust all of her resources of coal, and as a natural sequence, her proud civilzation must end. He further observes: "Beyond a peradventure, in less than five hundred years she will be embarrassed to sustain her pre-eminence in manufactures. Coal and iron have contributed more than any thing elee to make England what she is. The reaction of her great mineral sources is to develop science as well as commerce. Men like James Watt, Stevenson and Arkwright, were as surely the outgrowth of her mineral wealth as her manufactories and her shipping. We believe that blood and race will tell in a thousand ways for the prosperity of a nation, yet it is true that the Gulf Stream, with its climatic influence, and the vast beds of coal and iron, have saved the inhabitants of England from a condition of mind and body not much above that of the Esquimaux.

A substitute for coal must soon be found, or the days of England's supremacy will end within a few centuries. The downfall may be postponed by the discovery of more economical modes of the use of fuel; for it has been estimated that four-fifths of the present mode of consumption of fuel is direct waste. Some who have given this subject their attention, look forward to the discovery of other material that can be utilized as fuel, now unknown. But we are inclined to the belief that vegetation and coal occupy too large a place in the economy of nature ever to be dispensed with in carrying on her work.

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Nature can not be greatly interfered with in her plans with impunity. If the balance of the two kingdoms (the vegetable and the animal) is not kept rigidly adjusted, her punishments will be certain and severe. I suppose it is true that the great coal fields of the earth must be ultimately exhausted, for the supply is limited and is not renewed. Hence, the only apparent security against such a calamity is the preservation and renewal of the forests upon such a scale as will keep pace with animal life and the necessities of human civilization. The animal and vegetable kingdoms must have strict and proportional relations with each other for the highest good of each. Carbolic acid gas exhaled from the lungs of animals (a deadly poison to themselves) is the chief food of plants, at the same time the oxygen exhaled by plants restores it to the atmosphere from whence it is obtained by the animal kingdom. By a wise provision of nature, it was designed that animals and plants should live together. Not only this, but the *debris* and excretions of both animals and vegetables must be returned to the soil, or it will soon become barren.

It is a fact well known by botanists, that the exudations at the roots of many plants is a poison to the plant which secretes it, though it may be a stimulus to some other plant. Hence arises the necessity and practice of rotation of crops. It is not an improbable fact that lands long in cultivation should be returned to the forest condition every few hundred years. Forests are the nurseries of species both animal and vegetable. Their immense variety of life restores to the soil all the needed elements of fertility. But few of us, possibly none, realize the enormous amount of animal life thus immediately dependent upon forests for subsistence. Beast, bird, reptiles and hordes of insects are designed only to flourish therein. That they are important factors in the economy of nature no one will deny.

Human extravagance and greed will soon make a desert of our beautiful earth, unless restrained by the edicts of wisdom. It is but the question of a few centuries when the proudest nationalties of the world will follow the effete races of the East in their road of decay.

Already in the most densely populated portions of the globe, the soil is unable to supply the inhabitants with food, on account of its impoverished condition. Some writer has observed that a vegetable bankruptcy is rapidly approaching, brought on by her favorite but extravagant children. Bread, meat, and vegetables, at the expense of the elements of nutrition now in the United states, anticipate harvests that should have been spread over centuries. The influence of forests can not be overestimated in tempering the rigors of our winters and bring about the proper amount of rainfall.

As yet we are only familiar with the surface features of the great ocean of life of which we are a portion. We have carefully examined but few of the myriad forms that await our investigation. The results, as far as we have gone, greatly encourage further research.

Nearly all of the remedial agents known to the medical world are directly obtained from the vegetable kingdom.

Man's position in nature is such as to possess great controlling or modifying power. He can direct her great forces in a war upon himself. The animal and vegetable kingdoms are, in a great measure, at his mercy. Through greed or extravagance he can burn, ravage, and destroy in one year what it has taken ages to produce. It is against this useless waste, accompanying civilization, that science must set its face like flint, else the short career of man upon earth is a foregone conclusion. The United States possess more rich virgin soil well adapted for immediate cultivation than any other equal area of the earth's surface. In many portions of the Eastern States the land is already worn out, or is only kept up by

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expensive artificial fertilizers. We verily believe that in a century or two, with present and past management, the great prairies of the West and Northwest will become deserts of desolation.

It seems to me that it is *imperative* that this Government should *at once* see to it that large reserves for the growth of timber shall be left throughout the country, for the benefit of posterity. Every State ought to pass a law making it incumbent upon every landholder to devote at least one-third of his landed property to the cultivation of timber. The railroad corporations which have received such extravagant donations of land should be compelled to devote from one-third to one-half of their possessions to the cultivation of trees. All public highways should be lined with the more valuable forest trees, and, in particular, railroad companies should be required to cultivate as much timber along their lines as possible, and cease to be propagators of noxious weeds.

If the maxim, "Live and let live," be carried out, it will react in every way favorable upon the human race. It is a shame that so many interesting and valuable animals and plants have been exterminated from our country. This has been largely brought about by the destruction of forests in our greed to cultivate every inch of soil for mercenary purposes. In a few years we will reap an unwelcome harvest from this mistake in judgment.

The American farmer has been little less than a destroyer. It is encouraging, however, to know that the attention of farmers through scientific experiment and investigation is being directed to the need of a more scientific mode of cultivating the soil, and already many are adapting their methods more nearly to the requirements of nature.

We are *apt* in calculating prospective values even a half century ahead. The spirit of speculation is in no way backward. We are willing to draw on posterity for national, state and city improvements, believing that, in some mysterious way, nature will honor our drafts. Were we as ready to provide for our *remote* descendents as our *immediate*, our memory might be held in higher esteem. The question of lumber and fuel is already becoming a serious one. These two items are three or four times as expensive as they were within our own recollection. The sources of supply are becoming more and more distant. Their further increase in price from thirty to fifty per cent. is as sure as sunset. Forests should be planted throughout our great prairie region, on a scale commensurate with its area. One-third of that area would not be too great an estimate. It is fortunate that Illinois, Iowa and Kansas are supplied with coal. This will afford these States an opportunity to initiate forests before the evil days come, if they are disposed to do so. The demand for fuel and lumber is steadily increasing with the increase of population. The cost increases in the same proportion. The writer well remembers when wood sold in an Indiana village at one dollar a cord. In the same village to-day it is more than three times that price.

Thousands of farmers have burned large and magnificent forests in their haste to clear a farm. Such utter disregard to the near future, such wastefulness of the best gift of God to man was never before witnessed.

There are about three hundred and sixty-five species of forest trees in the limits of the United States, two hundred and thirty-four of which belong to the eastern section. No equals are on the globe, outside of the tropics, possessing so rich and varied a flora. The different purposes to which our native woods are adapted have been but slightly investigated. Doubtless many years, and perhaps centuries, will elapse before all of the various uses of our forest trees will be discovered. It has only recently been discovered that heretofore a useless species can be utilized for making a good quality of paper.

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Let us consider the various uses of a single plant. The bamboo, to the Chinaman, has become indispensable. From it he builds house, roof, siding, flooring, matting—*all*. He uses it for bridges, aqueducts, boats, fans, hats, paper and chopsticks. Nearly every article of furniture is made of it, as well as nearly every implement in agriculture, and of its seeds he makes excellent bread. It perhaps took a hundred or more generations for the Chinese to discover all of these adaptations. Perhaps we are following in their footsteps. We certainly are if we imagine that the great variety of forest trees in this country are of little importance, or that a dozen species are all that an advanced civilization requires. George M. Kellogg has made an estimate that forests in good condition will yield about five thousand pounds of dry wood per acre, and that the best wood equals about one-half its weight in Anthracite coal. He further states that two sections of land in every township for fuel, and two sections for lumber, will yield a sufficiency for present contingencies, and that two hundred and forty millions of acres devoted to forests would supply the population of the United States with fuel and lumber for all present purposes. I suppose it is true that sufficient forests exist, but they are distant from our centers of population, and they are being utterly destroyed instead of being renewed.

At present our greatest supplies of lumber are obtained from Michigan and Minnesota, the larger portion of which has to be transported five or six hundred miles to reach the nearest market. Our lands are being stripped of their forests as if there were no limits to the bounties of nature. We might as well exhaust the oxygen of the atmosphere, and then expect to keep on breathing, as to suppose we can continue to exist in a temperate climate without lumber and fuel. There is no good reason to suppose that any other sources of heat than wood and coal (although it may be possible) will ever be discovered so economical as these.

A careful investigation reveals the fact that every species in nature has the most intimate and perfect relations with surrounding nature. These look toward the past, the present and the future.

Let us take a single plant as an example—the Caoutchouc, or india-rubber plant of South America. This plant secreted for ages a milky sap wholly unutilized. At last civilized man appears upon the scene; he discovered how to utilize the dried sap. And now it is found that the relations of this plant to civilization are strangely interesting and important. It is also discovered that this rubber has a peculiar affinity for sulphur. By vulcanizing, the applications of this substance to human wants are at once increased a hundred fold. This rubber has certain attractions and repulsions to all known chemicals, and will as surely manifest relations to them which are yet to be discovered.

Thus, a single plant which seemingly filled its place for untold ages completely, had positive relations to civilization which may be designated as prophetic. How completely do such fulfilled prophetic relations establish the evidences of design in nature!

It is not the purpose of this paper to review the whole animal, vegetable and mineral kingdoms for the purpose of vindicating the thousand similar marvelous co-ordinations which exist. We would simply suggest that all created forms have just such interdependencies, taking hold of the past, the present and the future; moreover, we regard it as a mark of impiety to assert that any form in nature is incomplete or of little value.

Human sagacity, so far, has been able to point out but few of these important relations. Still, by analogy, we may well conclude that the same perfection in generals and details exists throughout the economy of nature. If this be true, how important is it that man should be a *true husbandman*. He should, on every hand,

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most earnestly seek to preserve whatever he may find in nature, and to abstain from the reckless waste which so largely characterizes the history of our present civilization. Every form of animal and vegetable life should be carefully preserved until it has been most thoroughly investigated, touching all of its possible relations to the wants of man. It is reasonable to suppose that many species have already fulfilled their mission and have become extinct. For instance, the more powerful predatory animals, which may have been created to counteract the undue multiplication of some species, have become unnecessary under the intelligent reign of man. It is not improbable that many of the simpler and cruder vegetables and fruits adapted to the infancy of the human race have also served their purpose, and are no longer necessary in the economy of nature.

If we adopt the motto "Live and let live," it may be found that many things, against which we are now waging a relentless war of extermination, should rather be most scrupulously fostered. The re-establishing of our forests, and the creation of new ones, can not be successfully effected except by the united action of both State and National governments. There ought to be extensive and regular national parks reserved throughout the whole national domain. These should be under the direction of efficient naturalists, whose duties should be to see to it, that our species do not become extinct, and that the excess only is used. Foresters and gamesters should be employed to wateh over these parks, and to take charge of their produce. We have a native race of foresters, with whom the nation has long been embarrassed. Who knows but these people might be trained to this duty, and thus developed into superior naturalists. They certainly do not seem to have any great liking for agriculture, but manifest extraordinary skill in wood craft. With the proper oversight and training they might be made a useful portion of the body politic.

If, as I have tried to indicate, a due regard to the future interests of the nation requires that at least one-third of our area be devoted to the propogation of forests an abundant range would be afforded these children of the forest. They might then become in truth the sturdy, generous, manly race which romance has delighted to paint.

We hold our magnificent territory as a heritage; but as custodians in the interest of posterity, whose interests are as sacred as our own. Let us see to it that we do not leave behind us a diminished inheritance. It is a fact that in our keen race for present profits, we are rapidly stripping our soil of the elements of fertility. The strength of the fabled Titan was redoubled each time his feet regained his mother earth. It is even so, our soil must be returned again and again to the bosom of nature, in order that the strength of the mighty mother may be transfused into its exhausted veins. Let this generation prove by practical sagacity that they are worthy of their fair heritage. Let them demonstrate through forethought that civilization is not a mistake in this Western Continent, the garden of the world.

J. G. Kingsbury. The Professor touched one point which I would like to ask about. Can he refer me to a book which would tell more about plants which exude a substance poisonous to themselves but not to others?

Prof. Butler. It was suggested to me by J. G. Wood, an English naturalist. I do not give it as a fact, but as a suggestion brought to me from him. Of course the general opinion

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is that some plants extract some elements from the soil, and other plants other elements. Hence the rotation is necessary.

J. G. Kingsbury. It seems to me there is something in it; because when trees are burned off, other kinds grow up on the same ground.

W. H. Ragan. I want to compliment the Society, as I have done before, that we are able to bring out such papers from men who are not actually engaged in horticulture. As to the rotation of species, one evidence is seen in the worn-out fields in the older States where we find pine trees. On the old fields cast out as barren you will see nothing but pines. The land has been cultivated; you can even see the old furrows of the plow. Many of the trees are a foot in diameter. But no deciduous trees are to be found.

T. V. Gifford. I think there is no member of the Society but is encouraged by such papers. But I have often thought that we ought to make more effort to have institutions of this kind represented in our Society. I think if we would take steps in this direction they would send representatives oftener.

W. H. Ragan. I wish to call attention to one thing. We were talking of the Maple bark louse. In my strolls on the street I met with the gentleman.

Mr. Ragan showed some twigs covered with a substance like cotton, which contains the germs for next year's crop.

J. G. Kingsbury. I want to make a suggestion to the President and Secretary, whose business it is to prepare the programme. You see here ladies form a principal part of the audience. I notice on our present programme there is not a lady's name. I suggest that hereafter they have an exercise by at least one lady. I suggest as a subject for next time, "Woman in Horticulture."

W. H. Ragan. I favor the suggestion. I already have a paper promised for the Mississippi Valley meeting, for women.

Secretary. There was a matter brought up yesterday which ought not to be passed by without some notice. That is, the resolution from Howard county. While we can't take action, yet it should not be ignored. There is a demand for something of this kind. I doubt legislation being the way to meet it. I think the best way is to extend the influence of our Society. Those who are members are certainly not the ones imposed upon. I think if a man in other things can protect himself he

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ought to in this. It is very easy by communication to find out the standing of agents. As I said, I think the extension of the influence of this Society is one of the best ways of preventing the swindling operations of the dealers.

T. V. Gifford then read the resolutions, and spoke as follows:

Now, gentlemen, we do not come asking anything but that you sanction this resolution, and give us a committee to present it to the Legislature. Our Representative has had the subject presented to him. He thinks it a suitable subject for legislation. We don't want this society to spend anything, but just to sanction it. This is no small matter. We have a law protecting us against impure fertilizers. That is all right, but what is it to sell impure fertilizers to what it is to sell plants, misrepresenting them, to be left three or four years. To give you some idea of it, there was a man in our neighborhood who went to a store and bought Mallaga grapes and used them in selling, and then boasted about it. I was never swindled by but one agent. He gave me a vine, when he found he could not sell one, to get my name to go to my neighbor.

H. Gregg. That appears to embrace provisions for the people buying trees. I would propose to add a little to protect the tree seller. We often sell to men as owners of land. When we come to collect we find their property is in their wives' names, and we can't collect a cent.

Gen. Stone. I think all an agent needs to do is to ask him to give an assertion in writing.

By motion, the resolutions were laid on the table.

J. C. Ratliff presented a memorial of the wants of Purdue, which, he said, would be presented to the Legislature. He brought it before this Society to be indorsed because it has a representative trustee.

It was indorsed.

Resolved, That the Indiana Horticultural Society heartily endorses the memorial to the General Assembly, petitioning for an adequate financial support to Purdue University. The officers of this Society are directed to indicate their endorsement by their signatures.

On motion the Society went into the election of officers. The following were unanimously chosen to the several positions:

President, Sylvester Johnson, of Irvington.

First Vice-President, 4th District, E. Y. Teas, Dunreith.

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Second Vice-President, 1st District, F. M. Polk, Tobinsport.

Third Vice-President, 2d District, D. F. Willey, Charlestown.

Fourth Vice-President, 3d District, J. W. Ragan, Fillmore.

Fifth Vice-President, 5th District, L. B. Custer, Logansport.

Sixth Vice-President, 6th District, I. D. G. Nelson, Ft. Wayne.

Secretary, C. M. Hobbs, Bridgeport.

Treasurer, Daniel Cox, Cartersburg.

Executive Committee, J. C. Ratliff, Richmond; D. E. Hoffman, Winchester; W. H. Ragan, Greencastle.

J. C. Ratliff was elected Trustee of Purdue University.

J. C. Ratliff. It is a continuation I hardly expected. But I can tell you, for the ten years I have been on the Board I never spent the same time more earnestly. It is poor compensation, three dollars per day, for the time actually spent, and for the last year we have not received anything, but we are none the less energetic about it. I am the only one left of those who were on the Board or Faculty when I was first elected.

W. H. Ragan. I wish to refer to one important matter, that is, in regard to the meeting of the Mississippi Valley Society. I regret I can not advise definitely about railroad rates, etc., now, but I will know in a few days. It is hard to get special rates when fifty roads are combined in offering rates at one cent per mile to all persons. But there are some that would like to have our patronage. Railroads in the South are interested in horticulture, and I think they will favor us. The more ladies that accompany the excursion the more interesting it becomes. When we went before, the railroad gave us a return from New Orleans by a new route, by Mobile, giving boat and railroad excursions. They gave us meals at the railroad hotels. This was due to the interest taken in horticulture in the South. We were through thousands of acres where cotton *was* king, but now they are gardening. I noticed that one county made $750,000 from gardening. I want to encourage all to go, and especially to the Mississippi Valley Horticultural Society. I do not know that such arrangements have been made with the railroads yet, but it was done when we went before.

Dr. Furnas. I have been looking after that a little. The cane-growers have been talking of going. I have been trying to make arrangements to go one way and come back another, but I have not been able to do so. They assure me the fare

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will be the same on all roads, $18. They can stop at Mammoth Cave or Lookout Mountain, or other places, according to the route taken. Roads are sparring a little but are afraid to break.

J. G. Kingsbury. I like the suggestion of Mr. Ragan about taking ladies. I think it all important for the pleasure of the trip.

President. You know it has been the practice of this society to appoint delegates to other State societies. We have no representatives from them. I am like I would be with a neighbor, I do not like to do all the calling. We have been sending to Illinois, Michigan and Ohio. My opinion is, we ought not to send to those States, as our finances are low and because they do not send to us. I think we ought to send delegates to the Pomological society, and we might make Mr. Ragan our delegate to New Orleans, as he will be there anyway.

The above remarks were concurred in.

By motion W. H. Ragan was made our representative to the Mississippi Valley meeting at New Orleans.

J. G. Kingsbury was made delegate to the Illinois State society, without pay.

At the suggestion of Mr. Ragan the society ordered that Mr. Kingsbury make his report for this year's proceedings.

On motion Prof. J. Troop, President Sylvester Johnson, and Secretary C. M. Hobbs were appointed as delegates, without pay, to the American Pomological Society at Grand Rapids.

On motion Mr. Ragan was instructed to invite the Mississippi Valley Society to Indianapolis next time, and the delegates to the Pomological Society were instructed to invite it to Indianapolis for its next meeting.

Prof. Butler extended a cordial invitation for the members of the society to visit the schools of Winchester.

The following resolution in reference to the quail was adopted:

Resolved, That it is the sense of this Socieiy that a law ought to be passed prohibiting the killing of the quail for three years, and that to this end our officers are hereby ordered to memorialize the Legislature on this subject on behalf of this Society.

J. C. Ratliff introduced the following resolution, which was adopted:

Resolved, That we hereby express our full sympathy with the Holmes bill to

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make an annual appropriation to each of the agricultural colleges (including Purdue University), for experimental purposes. President J. H. Smart is authorized to present our memorial for its passage.

The Society then adjourned, to meet at Purdue University on the 1st, 2d and 3d of December, 1885.

Afternoon Session.

WINCHESTER, IND., December 4, 1884.

The Horticultural Board met and allowed the following bills:

Sylvester Johnson, for postage for 1884	$10 00
L. B. Custer, expenses on committee revising fruit list	2 50
C. M. Hobbs, balance of salary and expenses for 1884	130 05
F. R. Albertson, for shorthand reporting	20 00
D. E. Hoffman, expenses on committee revising fruit list	5 00
C. M. Hobbs, expenses on committee revising fruit list	3 00
C. M. Hobbs, expenses on Arbor Day Committee	3 00
W. C. Latta, expenses on Arbor Day Committee	5 00
Daniel Cox, expenses as Treasurer	5 00
J. D. Hampton, expenses in attending the Michigan meeting	20 05
Total	$203 60

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VICE PRESIDENT'S REPORTS.

REPORT FROM FIRST DISTRICT.

F. M. POLK, VICE PRESIDENT.

In making out my report I can not call it a report for the First District, as I have had no means of ascertaining correct information from other portions of the district, and may not be a very correct report for all parts of the district, but more of a report of my own county. There was a fine prospect for apples at blooming time. I never saw trees so full of bloom, but when the bloom dropped there were but few apples left. They must have been injured by the severe cold weather of last winter, or by the cold east winds and rains in the spring. The trees seemed to be in a diseased condition. They had yellow spots on the leaves, and they fell off in large quantities about the time they shed their bloom; and they seem to be in an unhealthy condition, which I think was caused by the extreme cold weather or by the severe drouth of the fall before, or it may be that both had something to do with it. Of summer and fall apples there was a fair crop, but of winter apples, they were nearly an entire failure on the upland orchards, while in the bottom or low lands there was a good half crop. I have fifty acres in orchard, set out in 1871, and I did not have fifty barrels of merchantable apples in the orchard, and it is a fair sample of the apple crop in this part of the district. Fully nine-tenths of all the apples raised for commercial purposes are Ben Davis.

PEARS.

All the budded varieties failed to bear, but there was a fair crop of the old seedling varieties, and it looks like they are the only pears that we can depend on. They never blight, and bear fruit most every year.

PLUMS.

There were a few Wild Goose; other varieties none.

PEACHES.

None; trees badly injured, and many of them killed by the cold winter.

CHERRIES.

About half crop of Early May, and but few other varieties.

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QUINCES.

But little fruit, and trees injured.

GRAPES

Rotted badly, and the vines of some varieties were badly injured by the cold weather. There was not more than one-fourth of a crop.

BLACKBERRIES.

The Snyder bore a fair crop of berries, though about six inches of the tips were killed by the freeze, and most all the canes of the wild berries were killed to the ground.

RASPBERRIES.

The Gregg and Mammoth Cluster were badly injured by the cold weather; a great many were killed to the ground, and have made a feeble growth this summer; they bore about half a crop. The Tyler, Turner, Cuthbert and Shaffer's Colossal came through the winter unharmed by the cold, and bore a good crop The Tyler was the most productive, and ripens by the time strawberries are gone. Shaffer's is a large, late berry, and will be a profitable berry to raise.

STRAWBERRIES

Were not more than half a crop; some of our most profitable kinds failed to bear this year. Kentuck and Charles Downing have been our best market berries, but failed to bear this year, while Wilson and Crescent produced a fair crop. The Sharpless had a few extra nice berries, but is not productive enough for a market berry. Cumberland, Triumph about one-fourth of a crop; fine, large berries, but rather soft for market purposes. Longfellow but few berries; large and fine plants; not hardy. Warren—a few nice, large berries. Mount Vernon about a half crop of good size late berries. Miner's Prolific—a fair crop of good sized berries. Bidwell but few berries. Crystal City about one-fourth crop of small berries; don't think they will be a profitable variety for market purposes.

F. M. POLK.

TOBINSPORT, PERRY COUNTY, IND.

REPORT FROM THE SECOND DISTRICT.

DENNIS F. WILLEY, VICE PRESIDENT.

To the Indiana Horticultural Society:

For the year 1884 I have to report nearly a total failure of the fruit crop. Peaches were an entire failure, the buds being destroyed by winter freezing. There was a full bloom on apples, but from some cause there was but little fruit. The crop of summer apples was nearly an average, but fall and winter apples were a failure. There were a few locations, however, where there were very fair crops. Among these we may note about three townships in Harrison county where the

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apple crop was excellent. Also, along the Ohio river at various places there were occasional orchards that had full crops, the most notable of these were in Switzerland county, where there was quite a fair crop, especially of Jenets. I have not had an opportunity of investigating the peculiar surroundings of those few favored locations, and therefore am not able to say what particular cause led to their fruitfulness. There is one thing, however, that has been noticed this year, and that is, that there has been an unusual large amount of curculio, and it may be that the few favored localities were comparatively exempt from the ravages of them. The increase of curculio is probably due to the vast peach orchards in this district, and the failure of this crop caused them to attack the apple crop in such force as to almost destroy it.

Pears were nearly a failure.

Plums had to succumb to the curculio, even the thick skinned wild goose were not able to stand their attack.

Grapes were a fair crop where attention has been given them, but they are not much cultivated in this part of the State. Concord and Catawba do the best.

Of cherries there are but few grown, and in the vicinity of Louisville there is no possibility of raising them on account of the English sparrows, which devour them as soon as they begin to ripen.

Strawberries were fine this year; in fact, they seem to be perfectly reliable when proper attention is given them.

Raspberries appear to be the leading variety of all the small fruits in this district. The business is increasing rapidly, and so far has proved profitable. The leading varieties grown are Doolittle and Gregg.

Gooseberries were abundant.

Currants not much grown.

Potatoes—early, a very large yield, but late ones a failure. The growing of late potatoes is nearly abandoned in this part of the State, owing to the ravages of the cantharides, or "old-fashioned" potato bugs, and the summer drouth.

Tomatoes of nearly all varieties do well here every year.

Cabbage generally destroyed by worms.

The result of this year's crop may be put down as follows, which is as near as can be ascertained: Apples, 25 per cent. of a crop; peaches, 0; pears, 10 per cent. plums, 10 per cent.; quinces, 10 per cent.; cherries, 25 per cent.; raspberries, 100 per cent.; strawberries, 100 per cent.; currants, 20 per cent.; potatoes—early, 100 per cent.; late, 0; cabbage, 25 per cent.; blackberries, 5 per cent.

REPORT OF VICE-PRESIDENT FROM THE FOURTH DISTRICT.

E. Y. TEAS.

It is impossible for a person of my ability and acquaintance with the different parts of the eighteen counties composing this district to report with exactness upon its horticultural products.

I have endeavored, by correspondence and inquiry, to obtain some information on the subject. Over a considerable portion of this territory the devastation to our apple orchards, caused by the severe winter of a few years ago, is such, that we have almost no bearing trees; certainly not enough to render a fair crop of apples possible. This condition of things obtains mainly in the older settled counties,

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while in those more recently settled, where the orchard trees were younger and more vigorous, the loss sustained by the cold was far less, and in these localities the apple crops of 1883 and 1884 were generally abundant, and the fruit of fair to good quality. In the counties of Fayette, Henry, Johnson, Marion, Rush, Shelby, Union and Wayne, I do not believe that an apple crop equal to the needs of the territory named need be expected until trees come into bearing that are not yet planted, and the same condition of things obtain, to a greater or less extent, in other counties of the district.

And how is this great want to be supplied? It is an old fogy idea that *experience* is a good *teacher*, and that we can best judge the future by the past.

Under the new dispensation, all that is required for unfailing success is to purchase a supply of Russian and ironclad fruits from some of the "itinerant vagabond" tree peddlers, with whom "experience is not necessary to success," and—pay for your trees. Complete horticultural success is then absolutely and immediately certain.

There is, however, no new nor untried road to success. The varieties of apples that have been profitable in the past are the most likely to be profitable in the future and it is a little remarkable that some of our most reliable and best esteemed varieties came originally from the south, and that an equal list, equally acceptable, can not be made up from those of northern origin. This idea should have some weight with those who are inclined to hang all their hopes upon untried Russian varieties.

The first fruits to ripen are, of course, strawberries. The crop the past season was, I think, about medium. I consider Crescent Seedling, Capt. Jack, Mt. Vernon and Sharpless to be among the best of the well-tried sorts. Of raspberries, Tyler, Sonhegan, Ohio and Gregg seem the best of the blacks, and Turner, Throache and Shaffer's Colossal among the reds. Marlboro and Hamsell have both done finely on my grounds. I have not seen them elsewhere in the district. Of blackberries, Snyder, Taylor's Prolific and Wallace, have done well, yielding the past year about half a good crop. Gooseberries and currants are not very much grown. When protected from the currant-worm they have both yielded fairly. Peaches are not grown in the district. Cherries of the Morello class yielded about a half crop. Plums were not generally productive. Pears were generally scarce, though the trees have been far less injured by the cold winters than apple trees, and a larger per cent. of pear trees have withstood the ravages of time and the blight than of apple, in this district.

REPORT FROM THE FIFTH DISTRICT.

L. B. CUSTER.

As Vice-President for the fifth district, I present the following report:

It was a very dificult matter to gain any information from the different counties of this district, as there is not a single member of this society in eleven counties of this district. One reason is, that the distance to the annual meetings is too great, and another reason is, that the fruit growers of the North part of the State, are much nearer the meetings of the Michigan Society, and attend the meetings of that live society.

The business of the fruit grower for the past year, has not been a success by

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any means. The season has been very fickle. The bloom on almost all kinds of fruit and berries, was unusually full. It seemed that the fruit trees exhausted their vitality to a great extent in blooming; we had no late frosts to seriously injure the fruit, but it seemed that the buds were too weak to carry the fruit, which caused nearly all to drop off. The crop of apples, except in the most northern counties, were almost a total failure.

With me the Ben Davis done better than any other variety, but they were very knotty, very few apples were free of the effect of the codling moth. The Baldwin, R. I. Greening and Northern Spy, are the standard varieties in the northern counties, but with me the two former grow too rapid and winter-kill; the Northern Spy is so late coming into bearing.

Pears were noticable for their absence. Peaches failed to report.

Early Richmond Cherry, was the only variety that made its appearance, and that to a very limited extent. A great many other varieties of cherry trees are palmed off on the too confiding farmer, who dream of growing something equal to the bottled and magnified specimens, but soon awaken to realize that it is all a delusion, but soon forget the swindle, and are again ready to listen to a lecture on horticulture, from the first oily-tongued tree agent that comes along, give an order for trees, etc., and again go through the same routine.

As for plums, we are growing the Wild Goose plum, very unsuccessfully. The trees grow nicely, and bloom full annually, but the plums are wanting, and we are waiting to see them develop sometime in the future.

Grapes were almost a failure on account of mildew. It seems that where grapes are grown in vineyards, after the canes become eight or ten years old, they become unprofitable on account of mildew.

The only variety grown extensively is the Concord.

Blackberries are not cultivated extensively. Taylor's Prolific and Snyder are about the only varieties grown.

Raspberries, done moderately well. Mammoth Cluster and Gregg, are the most popular kinds for the northern part of the State.

The strawberries, which always comes first (but not the first in this report) were abundant and fine. The varieties grown are numerous. The Crescent Seedling seemed to take the lead for productiveness. Capt. Jack proved unsatisfactory this season. Big Bob is a fraud. Wilson is falling behind.

I wrote to several parties (inclosing stamps) in different parts of this district hoping to gain some further information, with but one exception it was a failure.

Mr. T. A. Peffer, contributes the following:

SOUTH BEND, IND., November 24, 1884.

DEAR SIR: I will endeavor to answer yours of 21st, as best I can, as there is no one engaged extensively in fruit growing in this section, anything that I may say will be quite meager.

The first fruit to ripen and the best berry God ever created is the strawberry. The leading varieties in this section are, for early: Crescent and Bidwell. Crystal City is of no account. For late, we have four tolerable good varieties, which are: Manchester, Mt. Vernon, Winsor Chief and Sharpless. No one cultivates the Wilson except those who are too mulish to admit that there is anything better.

The next to ripen is the raspberry. The leading black caps are: Gregg, Tyler and Mammoth Cluster. And for red, we have Cuthbert and Turner.

Of Blackberries, the following two varieties are best: Taylor's Prolific and Snyder.

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Of Grapes, the leading varieties cultivated are: Concord, Hartford and Ives but the Niagara is bound to take the lead as the most profitable grape under cultivation.

Of Pears, the leading varieties are: Bartlett, Buerre de Anjou, F. Beauty Clapp's Favorite and Buffum. The crop of pears the past two seasons has almost been an entire failure.

Of Apples the leading varieties for summer are: Red Astrachan and Early Harvest, for autumn are Maiden's Blush, 20 ounce and Famense. For winter Northern Spy, Baldwin, Ben Davis, H. Nonesuch, Jonathan, Wagner, Red Canada, Greening, etc.

This is the first year for several years that orchards have paid for the ground they occupy. All small fruit did well until affected by the drouth, which cut the last raspberries and blackberries quite short.

* * * * * *

Yours truly,

T. A. PEFFER.

REPORT FROM THE SIXTH DISTRICT.

I. D. G. NELSON.

To the President of the Indiana Horticultural Society:

SIR:—The fruit report from the Sixth District for the year 1884 is somewhat more encouraging than for a few years previous, and yet the anticipation of farmers realizing the profits they expected when they planted their orchards some years ago, having special reference to their commercial value, has fallen very far short of their expectations.

Fruit-growing in Indiana has been on the decline for many years, except certain kinds, and those mostly confined to certain localities. Forty years ago, apples, pears, peaches, plums, cherries and all the small fruits did exceedingly well in all sections of the State. The trees were hardy, enduring the winters well, and yet a severe winter about 1825 killed every apple tree in General Tipton's orchard, at Fort Wayne, afterward known as the Rockhill Orchard, consisting of three hundred trees, just coming into bearing. A few years after the ground was replanted by Mr. Rockhill, and ever since has been in as successful bearing as other neighboring orchards.

In 1841 I planted an orchard of one thousand apple trees, two hundred pears, two hundred plums, five hundred peach, and fifty cherries, besides a general collection of small fruits. Abundant success attended the enterprise for a number of years, which encouraged me to increase my planting, especially apples, until I had at one time over four thousand trees in bearing. In the meantime, however, the peach trees began to winter-kill; cherries, except the Early Richmond and the Morrillos; the pear trees began to blight and the bloom suffered from late spring frosts; the black knot attacked the plum trees, and the curculio the fruit, until the whole list of trees is of little value, except there is some hope of recovery, in some places, of the pear, which is greatly desired.

In the meantime the apple trees have been suffering from depredations of various kinds of insects and freezing weather, as well as blight in some localities, and the fruit frequently cut off by late spring frosts, so that the crop for some years has been very unreliable, and yet occasionally the crop has been exceedingly abundant and very profitable in shipping to Eastern markets.

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The apple is a hardy fruit, and the tree endures a good deal of abuse and the fruit buds resist very severe freezing, so that we nearly always have some apples every year in Northern Indiana, and our fruit-growers are beginning to indulge the hope that our good fruit seasons in Indiana are possibly returning.

I do not consider it worth while to repeat every year the varieties of fruit best adapted to Indiana, and the Sixth District in particular, as few seem to profit by it, judging by the poor fruit usually seen in our market.

In conclusion I will remark that while it is a source of no small regret to know that in the central and southern portions of the State our home market is largely supplied from New York and Michigan with its best fruit, the Sixth District, composed of Allen and twelve other counties, in the northeast part of the State, is usually able to furnish all the apples required for home consumption, and in favorable seasons ships large quantities to Eastern cities. Bnt I can not but also express regret that a State so rich in other productions should rely so much on others for so large a supply of the best winter apples. Still there are hopeful signs of better fruit seasons in store for us, and if a proper regard is paid to the recommendations of this Society, we will yet be able not only to supply ourselves, but other States as well.

I. D. G. NELSON.

REPORT FROM MISSISSIPPI VALLEY MEETING.

BY E. Y. TEAS.

The fifth annual meeting of the Mississippi Valley Horticultural Society was held in Philharmonic Hall at Kansas City, June 22 to 25, 1884. Your delegate failed to reach the meeting until the evening of the first day. I found here assembled a large number of the leading horticulturists of the Union. I have, during the last twenty-five years, attended a large portion of the horticultural conventions held in various parts of the country, but never before met a more earnest, intelligent company of men and women than at this meeting. The Society met as the guest of the Missouri State Horticultural Society and it prosperous sister, the Missouri Valley Horticultural Society.

Seventeen States were represented at the meeting, including delegates from Connecticut in the far East, and Colorado in the West. Delegates from Minnesota strove to make us believe that State to be one of the best for fruit, while Mr. Nowlin and Dr. Gregory, of Arkansas, thought their State offered the greatest inducements to the fruit-grower.

The papers "Circulation of the Sap," by Prof. Robson, of Kansas, and "Small Fruits in the Family," by our President Johnson, were able productions and elicited a good deal of discussion.

A paper by Father Grimes, of Denver (the humorist of the meeting), "Horticultural Resources of Colorado," gave an interesting account of the attainments and capabilities of this new State, in which irrigation received considerable attention and its practical application explained.

"Timber Interests of the Pacific Coast," a paper by ex-Governor Furnas, of Nebraska, one of the United States Commissioners to examine the timber interests of the far West, was an able paper.

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Other important papers, "Raspberry Culture," by Mr. Ohmer, of Ohio; "Conditions of Profitable Fruit Culture in Minnesota," by Oliver Gibbs, Jr., of Minnesota; "The Future of Orcharding in the Prairie States," by Prof. Budd, of Iowa; "Educational Influences of Horticulture," by Mrs. G. A. Tryon, of Illinois, was a paper of unusual excellence, and elicited unqualified approval.

The annual address of Parker Earl, President of the Society, was the ablest and most complete paper of the kind I ever listened to, and I believe the eulogy on Dr. John A. Warder, pronounced by ex-Governor J. Sterling Morton, of Nebraska, was one of the most touching and appropriate essays I have ever heard. But the entire proceedings of the convention, collected and compiled by Secretary Ragan into a neat volume of near 300 pages, is so completely filled with choice gems of horticultural thought and experience that no fauit-grower can well afford to be without a copy, which can readily be obtained of Secretary Ragan by payment of the fee for annual membership.

GROWING APPLES.

BY JACOB D. HAMPTON.

Honorable President and Secretary:

At your request I submit a short article on what I consider to be the true principle on which to grow fruit, especially the apple. Many have become discouraged and abandoned their favorite pursuit, because their trees are on the decline and fail to produce as in former years. This is not to be wondered at, as they have failed to plant new orchards; they have treated their old ones as though they would grow and be fruitful until they were old as the oaks of the hills or the maples of the valley. Some of you may say that history tells us the apple and pear tree have been known to live to be one hundred or one hundred and fifty years old, and still producing fruit. This I do not deny, but they are unprofitable cumberers of the ground, and were it not for the scarcity of such old relics, would ere this have fallen by the woodman's ax. We read of individuals who have lived to the age of one hundred and sixty years, and that in modern times, while the average age of man is thirty-three years, so I think it is as impossible to grow fruit successfully without planting young trees to group and take the places of our old orchards, as it is to people the earth without children.

The orchards of this State, prior to the winters of 1880 and 1881 (which were so destructive to our orchards) were fully competent to bear five millions of bushels of apples, which, at forty cents per bushel, would be worth two millions dollars, while the present condition would not produce more than half that amount. If this be true (and I think it approximates very near the truth), we can all see at once what the loss to the State would be. I am aware you will say point out the remedy, and we are with you. While I have no infallible remedy for this evil, I wish to provoke a discussion on this subject that may bring about the desired result. While I do not propose what we shall plant or not plant, but wish to express what may seem a novelty to some, but to me it is a tried reality.

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When you have selected your location, proceed to plant your trees by setting the slowest growers on the richest soil, and those that make wood rapidly on thinner soil, and both will be the better by it, as experience has demonstrated clearly that such is the fact. I have but little hesitation in believing that the vitality of the trees will be prolonged, and their bearing qualities much increased, than if otherwise planted.

One thing I will mention in connection with this, which I think of too much importance to pass by unnoticed, viz: If you plant one hundred trees two rods apart (which is a commendable distance) they will occupy two and one-half acres. I think it much better that the plat on which the trees are planted be twenty rods square than ten by forty rods, for the longer your orchard is, the more your fruit will be exposed to the ravages of that much dreaded enemy, the curculio.

Some instructions about planting may be of benefit to new beginners. The first thing to do is to select the highest and dryest location you have. Let it be as near square as the situation will admit of. If you intend planting in the spring, plow your ground the fall preceding in two rod lands, making your cleaning-out furrows where your rows of trees will be. This should be done the way that will drain the ground to the best advantage. By leaving the furrows open during the winter the action of the frost on the subsoil brings it into a better condition for the trees, as well as a partial under drain. When spring opens and the ground is in good condition for plowing, harrow your ground where the trees are to be planted, then rebreak it by turning your headland into the furrow, then harrow as before. Repeat the plowing and harrowing until you have thrown up a ridge sufficiently high to drain the water to the center of the rows. Your ground now being ready, plant your trees two rods apart, one inch deeper than they grew in the nursery. Cut away about one-third of the top; dig the hole to plant in large enough for all the roots to have their natural position; place fine soil around the small roots with the fingers; occasionally press with the foot. When you have filled and pressed sufficiently to the nursery mark, leave the last inch of dirt loose to prevent baking. To know what varieties to plant that will be the most satisfactory, is the vexed question, and has puzzled wiser heads than mine. Doctors and lawyers have been as far from being a unit on this important point as men of science, or those that profess to know all about such matters.

But, notwithstanding all this, they are eager for the fruits of the horticulturist. If you get your trees of a reliable nurseryman, who is a member of a live horticultural society, and a practical worker in the State Society, you may be well assured that he will be able to give you the varieties that are best calculated to make a man prosperous and happy. The surest way to keep posted in this matter is to plant a new orchard about every fifteen years, selecting each time such varieties for your new orchard as have been the most satisfactory the last ten or fifteen years, and are yet promising to do well, all things considered. If this does not remedy the evil that is upon us, then I am at a loss to know how to advise.

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COUNTY SOCIETY REPORTS, PAPERS, ETC.

RANDOLPH COUNTY HORTICULTURAL SOCIETY.

The last meeting of this Society for this year was held on Saturday, December 20th, and as has been the custom in former years, the annual election of officers took place, and herewith is a list of the names as shown by an "honest count," to have been selected to fill the offices of the Society for the ensuing year:

President—B. F. Wilmore.

Vice President—Mrs. India M. Hiatt.

Secretary—Prof. E. H. Butler.

Treasurer—Jesse Wilmore.

During the year the Society held eleven monthly meetings, six of which were held at the residences of the members in different parts of the county, and the other five of our meetings took place at the grand jury rooms in the court house, the meetings at the homes of our members generally proving the most successful ones.

At the organization of the Society, now three years ago, we adopted the social feature of preparing a good dinner, and these dinners have proved an important factor in the success of our meetings.

We have had some very interesting and satisfactory reports from our committee on the conditions of our fruit trees and the fruit crop from time to time during the season, and at some of the meetings we had fine displays of fruits, flowers and vegetables, which afforded good opportunities to make observation or compare notes, and to get a vast amount of practical and useful information.

Some of the members made a very fine display of fruit in the name of this Society at the Randolph County Fair. The object of which was to bring the existence of the Horticultural Society, more prominently before the citizens of the county.

At each meeting we have one or more essays, which are generally discussed by the members and as the proceedings are printed in one of the county papers, and then the matter put in pamphlet form and several hundred copies printed for the use of the Society, we have, at the end of the year, quite a book filled with varied and instructive reading.

The last meeting of the State Society in our midst has awakened a new interest in horticulture, and we have every reason to hope that the community in general and our Society in particular, has derived lasting benefits from the proceedings of the State Society.

Why it is, that there are comparatively so few in each community that take interest enough in horticulture to attend a meeting of a Society which directly benefits in some degree the interests of all. I can not give a satisfactory reason, certain it is that enthusiastic horticulturists either from selfish motives or other less visi-

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ble causes fail to materialize at the meetings of the Society, yet in spite of the apparent indifference, we hope our Society will continue to grow in membership, interest and usefulness until its influence shall be felt in every household.

D. E. HOFFMAN,
Secretary.

MARION COUNTY'S SOCIETY REPORT.

The Marion County Agricultural and Horticultural Society still maintains its monthly meetings. During the year its largely increased attendance, together with the growing interest manifested in its proceedings, go to prove that it is working wisely and on the right plan. Some of the meetings have been attended by over three hundred, while all show an increase over any previous year, and the people appear to be hungry for information. Five sessions were held out doors, including one joint meeting with the Hendricks county society. The latter meeting deserves special mention for attendance and interest manifested by people of that county. We, the visitors, desire to testify as to their enthusiastic industry and generous hospitality. The other meetings during the year were held at the State Agricultural rooms. At each of these meetings reports from committees as to the comparative conditions of farm, garden, orchard and small fruit crops, together with reports on entomology, ornithology, bee culture, fish culture, etc., have been made and discussed, which has kept us well informed on these points.

The papers read, and the lectures delivered, have been especially valuable and entertaining. Among these may be mentioned: Bread Making, by Mrs. Dr. Swain; Birds and Horticulture, by C. M. Hobbs; Glimpses on the Rhine, by Mrs. Bolton; What to do with Five Acres, by S. Johnson; Wheat Rust, by Miss L. J. Martin; Employment for Winter Evenings on the Farm, by Prof. W. A. Bell; Course of Reading for Farmers' Families, by Prof A. C. Shortridge; Mistakes of Marion County Farmers; Better Modes of Wheat Culture; Duties of the Mistress of the Household, etc. Quite a number of these have appeared in the *Indiana Farmer* and other papers.

At the March meeting, Sylvester Johnson was elected President; Mrs. Mary B Danley, Treasurer; W. B. Flick, Secretary, and a Vice President from each township.

The horticultural interests of the county seems to have received quite an impetus during the year. This is manifested mainly in the increased number of orchards and small fruit plantations, which have been made in the vicinity of the city; also, in the dooryard, window, lawn and roadside decorations seen on the premises of the working class—nearly every home now having its window garden of flowers, if not its vegetables and fruit garden out doors. The school premises (thanks to our State Horticultural Society) are receiving some attention in the matter of shade and flowers also. All these argue well for the health, comfort and happiness of the community. Inasmuch as Vice President from this district will report as to its horticultural condition during the past, I will omit any allusion to the subject. In viewing the work of the past year, we can say that we have much to encourage us, and we begin the new year with increased hope and courage.

Respectfully submitted,

W. B. FLICK,
Secretary.

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PARKE COUNTY HORTICULTURAL SOCIETY.

This Society is now in the fourth year of its reorganization, and there has been quite an increase of interest during the past year. We have not held regular meetings, but have met on call of the President.

Our meetings have generally been held at Bloomingdale, with the exception of one, which was held at the residence of Solomon Allen, the pioneer horticulturist of Parke county, and was an occasion of rare interest, as Mr. Allen, who is a very aged man, gave the Society a familiar talk on "How to Raise Strawberries."

Arrangements are being perfected for holding meetings at the homes of prominent fruit growers, which, we think, will be conducive of good results.

The past season has not been a favorable one for either small fruits, vegetables or grain.

OFFICERS FOR THE ENSUING YEAR.

President, S. B. Woodard; Vice Presidents, Nathan Harvey, L. H. Adamson, Kersey Newlin; Secretary, C. W. Mendenhall; Treasurer, D. S. Woodard; Superintendent, Thomas Nelson.

ALBERT HUNT.
Secretary.

TWENTY YEARS' EXPERIENCE IN APPLE CULTURE.

READ BEFOBE THE PARKE COUNTY HORTICULTURAL SOCIETY, NOVEMBER 29, 1884, BY S. B. WOODARD.

Perhaps of all the varieties of fruits with which a bountiful Providence has blessed us the apple is the most important, the most valuable, and most indispensible to the health, comfort and happiness of man. And thus it is that pointing out the best plans to insure success in its cultivation becomes a subject of great interest to the fruit grower. I do not propose, my friends, in these notes and observations to attempt to instruct others how to succeed in the cultivation of this most desirable fruit, but if my experience for twenty years past can be of any benefit to any one they are welcome to it. If in pointing out my mistakes may cause others to avoid them, or wherein I may have been successful will encourage others in the same direction, it may not be in vain to tell it. Twenty years ago next spring (in 1865) I set out my first orchard, consisting of about one hundred apple trees. For several years previous I had been trying to collect information from fruit growers, nurserymen, writers and lecturers as to what was the best soil, best location, best kinds to plant and best way to plant them; also, size, age and shape of tree, and distance bstween them, and having, as I thought, obtained about all the necessary knowledge I proceeded to plant my trees, thinking I was pretty well posted. First, as to location, I knew I had a good one, as it had been tested for over twenty years before by a good bearing orchard on the same farm. As to vari-

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eties, I had been adding to my list according to the recommendations of the nurserymen and fruit growers, especially noting the *star* list as published by the State Fair Association, until I had the names of about forty varieties written down in my day book, all in their season, summer, fall and winter, recommended to be par excellent—almost indispensable for family use and for market. At one of our county exhibitions, held in the Academy building here on these grounds, I listened to a lecture by John Tenbrook (then a nurseryman), in which he told us "There was every reason in favor of low top trees and none in favor of high tops," and I adopted his idea with a will, and acted accordingly, choosing those trees that commenced branching off or making tops as near the ground as possible. I got my trees of Wildman & Co., I suppose true to name. Bought large trees three to six years old; dug large holes, thirty feet apart each way; set the trees with rich top soil around the roots, using rotten straw around the trees on the surface for mulching, and cultivating the ground for four or five years in root and grain crops, until the trees commenced bearing, when I sowed it with grass seed. Now, for results. I was successful in my planting, for I didn't lose a tree. I gained in planting large trees, for they commenced bearing several years sooner. My greatest mistake was in planting so many varieties; my next in planting low top trees. There has been no profit to me in such varieties as Cook's Green, King of Tompkins County, Pound Pippin and some others, while the Red Astrachan, Yellow Bellflower, None Such, Red June, Tolpehocken, President and Milam barely pay expenses. In this orchard Maiden's Blush, Northern Spy, Rome Beauty, Roman Stem, Pickard's Reserve, Rambo, Vandever Pippin and Smith's Cider bore more or less every year, generally full enough.

With regard to low tops, I now would reverse the rule I started out on and say there is no good reason in their favor, and many against them, and I have been trying to make higher tops out of these trees ever since, yet with only partial success. I have pruned off a large amount of brush almost every year, mostly from the under branches. The limbs are generally longer on low, short-bodied trees, and, consequently, have a greater tendency to split off from the main trunk when loaded with fruit or during storms. The apples on the lower limbs being shaded from the sun's rays are of poor quality, and the limbs are very much in the way of cultivating or mowing the land.

I think it was in the spring of '68, or seventeen years ago next spring, that I set out my second orchard of one hundred trees. It was the year the locusts were here in such immense swarms. (If that was in '68, they may be here again next summer, as they are said to return every seventeen years.) The summer was a very dry one, and the dry weather and locusts combined killed about half my trees. I think they would about all have died if I had not given about half of them a good mulching of straw about half rotten, which kept the ground moist through the dry weather and caused nearly every tree to grow where it was applied. In planting this orchard I left out nearly half the varieties I planted in the former and added the Early Strawberry (which has proven a success), and Wine and White Pippin with partial success.

Both of the above described orchards were planted on the sides of high ridges or hills, one sloping to the west and south, and the other to the east and south. If there is any difference in the average bearing or fruiting of the trees I think it is in favor of the one sloping to the west, and I think a northern slope would still be better, as the frosts in the spring-time would be more gradually melted by the rays of the morning sun, and thus the tender swelling fruit buds be protected from too sudden changes of temperature. For ten years past the best average bearing variety has been the Maiden's Blush, and the Rome Beauty, Pickard's Reserve, Penn-

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sylvania Red Streak, Northern Spy, Baldwin, Wine Sap, Summer Rose, Rambo, Vandever Pippin, Geneting and Milam, about in the order named. My last orchard of 125 trees, where I now live, was mostly planted three years ago last spring (in 1881), on about 3½ acres of elevated ground, gradually sloping in every direction from the center, on clay soil (sugar tree and oak land), a part of it being new ground. I selected large trees in Wildman's nursery, near by, transplanted them to my orchard same day they were taken up; large holes were dug and tree placed in so as to straighten out all the roots, rich top soil thrown in and well packed around the roots, and a dressing every spring since of one or two bushels of rotten straw around each tree on the surface. The trees have grown wonderfully, and nearly all bore a few apples this season, the Ben Davis averaging nearly one bushel to the tree. I planted but few varieties in this orchard, convinced from past experience that there are but comparatively few kinds that it pays to cultivate for market. The Ben Davis stands at the head of the list in my estimation, so far as I have tested it, with regard to beauty of appearance and productiveness, but not with regard to quality. Then in the order named, Rome Beauty, Millikin Sweet, Winter Winesap, Pickard's Reserve, Roman Stem, Northern Spy, Maiden's Blush, Strawberry, Geneting. With the advantage of some experience, if I were going to set another orchard of one hundred trees *now* for market I would choose about ten varieties: Six of winter kinds, two of fall and two of summer; ninety of the trees winter, six fall and two summer varieties, viz.: 30 Ben Davis, 15 Rome Beauty, 15 Millikin Sweet, 10 Winesap, 10 Northern Spy, 10 Pickard's Reserve; for fall: 3 Maiden's Blush, 3 Rambo; for summer: 2 Summer Rose, 2 Early Strawberry.

I have said nothing in regard to the multitude of insect enemies the fruit-grower of to-day has to contend with, but would advise my friends to wage war on them with fire, hot water, soft soap and suds, lime, salt, and all the other remedies you can hear of and report results.

FLOYD COUNTY HORTICULTURAL SOCIETY.

Through the influence of the State society's meeting in this county last winter, a live local society has been formed, which is something we have felt the want of for some time.

A meeting of the horticulturists of the county was held in the Council Chamber of New Albany, August 9, and formed a temporary organization, but did not organize as a permanent society until August 30, when we adopted the Randolph Horticultural Society's constitution, and elected Prof. J. T. Smith, President; Charles Hewitt, Vice President; Edwin Yenowine, Secretary; Wm. Schwartz, Treasurer; Jonathan Beard, Prof. F. A. Friedly and L. Yenowine, Executive Committee. Have been having very interesting and instructive meetings at New Albany and Edwardsville. The subjects we have had for discussion, the following are a part: Hill Culture of Strawberries *vs.* Matted Rows. Best way of Growing Potatoes. Fall plowing for small fruits and field crops. Quince Culture. Grape Culture and Varieties, and several interesting essays and lectures.

Meet semi-monthly, and have our proceedings published in the local papers.

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Have a membership of twenty-four good workers, and steadily increasing. We hope the State society will visit the "Falls" again in the near future.

Officers elected for the coming year are as follows: Chesterfield Hutsell, President; Norton M. Brown, Vice President; Edwin Yenowine, Secretary; William Schwartz, Treasurer; Jonathan Beard, Prof. F. A. Friedly, I. Yenowine, Executive Committee.

December 6. EDWIN YENOWINE, *Secretary.*

HENDRICKS COUNTY SOCIETY.

To the Indiana Horticultural Society:

The Plainfield Horticultural and Agricultural Society has had some very interesting and edifying papers and lectures delivered at its meetings during the past year on subjects of general interest to the horticulturist and agriculturist. And in addition to the usual meetings the society held a fair near Plainfield, which was well patronized in some departments; indeed, all the exhibits were of good quality and the variety satisfactory, the whole showing quite commendable.

Our standing committee would report as follows: On orchards—apple bloom plenty, but fruit mostly fell off during summer; result, a light crop of inferior fruit. Would recommend the use of ashes and salt under the trees for their health, and destruction of insects. Would recommend the following varieties for our locality, Jersey Black, Wine Sap, Maiden Blush, Clayton, Jarmenite and Ben Davis.

On fruit lots and gardens—Strawberry crop light; currants, best crop for years and less annoyance by the worm; raspberries, a good yield of black caps; blackberries, the Pioneer variety yielded best; gardens done well, though affected some by drouth.

Entomology—The Colorado potato bug has claimed his place for seven months or more during the twelve, but not in such numbers as formerly, and with liberal applications of paris-green or London purple we are enabled to harvest fair crops of potatoes. The currant worm still gives some trouble on the currant and gooseberry bushes. White helebore is recommended to kill them, also fresh wood ashes sprinkled under the bushes. The cabbage worm is still a great pest. Would recommend to plant liberally and allow the turkeys to run in the cabbage field and devour the worms; they will also claim about twenty per cent of the cabbage. The Hessian fly is not doing much damage; the white grub, cut worm and army worm have given but little trouble.

Our ornithologist reports the robin the worst bird we have; don't think our bird laws any advantage to the farmer.

Respectfully submitted,

W. H. MILLS,
Secretary.

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REPORT OF THE DELAWARE COUNTY HORTICULTURAL SOCIETY FOR 1884.

The Delaware County Horticultural Society has had, taking everything into consideration, a very successful year. We have met eleven times, and next meeting will have completed the year.

We feel now that the Society is placed on a firm basis, both socially and financially. The best people, both in country and city, have welcomed us to their homes and entertained us right royally.

Our papers and discussions have been varied and interesting. We flatter ourselves that among our membership are bright minds and literary ability of no mean order. But even before these we would place the brawn and brain, the practical agriculturists and horticulturists, who always come with valuable information, and our membership includes many members who have for years been small fruit growers, gardeners and farmers.

The ladies have always been present with their many wise suggestions. Their influence in cultivating the social feeling and good will, and in forwarding the aesthetic in our Society, has been immeasurable. They have been, if the men will excuse the liberty, the moving spirit in the Society, always putting the men in a good humor for the afternoon session by appealing to their stomachs.

The press has been uniformly courteous in printing notices, minutes and papers.

We are sorry that we can not give a fuller report of small fruits and flowers. They have been brought to each meeting of our Society in excellent condition and regal profusion, but the reports were not copied in the Secretary's report.

Strawberry crops were found to be short and unprofitable to the growers. The yield per acre was much less than that of last year, and prices lower, but a great addition to the number of new patches caused the market to be filled to repletion. This shows that farmers have begun cultivating strawberries for their own use.

Drouth also shortened the crop of raspberries and blackberries.

Grapes were excellent and a fair yield.

Potatoes were small and fewer in a hill, owing to the drouth, but the number of acres planted makes the supply above the demand.

Our Society is still in its infancy, having been organized in 1880, and in thinking over the many obstacles it has surmounted, and the growing interest in its meetings, we believe we are on the highway to permanent success.

HELEN R. YOUNG,
Secretary pro tem.

DELAWARE COUNTY SOCIETY.

HOUSEWORK.

"A boy was interviewed by a newspaper reporter:

In answer to a question the boy said: "My mother gets me up every morning, gives me my breakfast and gets me off to work. Then she gets my father up, gets his breakfast, and sends him off. Then she washes and dresses Johnnie and Sarah, gives them their breakfast, fills their lunch basket, and sends them to school, and then she and the baby have their breakfast."

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"What do you earn a day, my boy?"

"I get $2 a week and my father gets $2 per day."

"How much does your mother get?"

"Mother? She don't work for anybody."

"Why, I thought you said just now that she works for all of you?"

"Oh, yes, but then there ain't no money in it."

This woman's employment Mr. President was house work, in the sense I presume that your committee had in mind when my subject was assigned me. If your Society were composed of philosophers and artists, and if your committee on programme had wished to attract attention to its learning and its familiarity with high sounding terms, my paper would have been headed "Domestic Science" probably, instead of plain, practical, common sense "House Work." But the mother and the wife that we have taken for our text may never have heard of Domestic Science, at least may only have conceived of it as something grand and entirely beyond her line of humble home duties.

All unconsciously to herself however, she has been practicing many of the most useful arts. She has been solving some of the most abstruse problems, and has been molding the minds of her young charge in more of the useful subtleties of mental philosophy than have ever been laid down in the books.

What art so useful as that of making and presiding over a home, a *real* home where husband and children are sure of finding rest, food and mother love?

What mathematics so intricate as that of making one dollar do the work of three, or of supplying a healthy and nutritive meal for the hungry ones out of odds and ends left over from yesterday's dinner?

What philosophy more sublime than that of directing the feet of childhood into the paths of industry, sobriety and usefulness?

True, as the boy said, there may be no actual money laid in the hand of the tired woman. She may see scarcely a dollar during the long, busy year, except as she sees it pass in or out of her husband's pocket—but who shall say that she has not fairly earned a large per cent of every silver coin or crisp bank bill that the farm or workshop, or the professor's desk may have set to the side of its assets during every month since the day she took the proprietor "for better or for worse."

The boy's estimate of his mother's work is characteristic of the value sometimes placed upon the services of the housekeeper by boys of larger growth. In their arrogance they assume that women were created for the sole purpose of cooking, and washing, and ironing, and tending the baby, and that it is presumption for her to attempt to rise above her destiny. This idea has one merit, that of a respectable antiquity. The Indian, who formerly occupied the country, would have been shocked and disgusted if one of their wives had asked her lordly superior to bring a gourd of water, or prepare the poles to hang the kettle for the cooking of the venison. If he killed the deer, she might drag it home, dress and cook it. She might plant, cultivate, and grind the corn, make the hominy, carry the tent-poles, and the rest of the family goods in moving, and consider herself happy if she received an occasional grunt of approval from Mr. Sitting Bull, Between-the-Logs or Red Cloud, and accepted, with squaw-like devotion, the frequent thrashings bestowed upon her, just to keep her in mind of her proper sphere. Much of this extreme barbarism passed away with the Indian, and much of its more refined counterpart has vanished year by year with the steady march of improvement. The self-reliance of women as a result of better education and broader views of life; the change of public sentiment with regard to her inherent right to think and act for herself; the more enlightened views of our law-makers, which allow her to hold property in her own right, thus giving her encouragement to earn,

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hold, invest, or transfer it, if she desires so to do; all these and many more changes in the comparative status of the sexes have had the effect of lifting her from a condition of subserviency to her lord and master, into the proud position of his peer and companion.

This removal of arbitrary limitations and the large liberty now accorded to womanhood are conditions without which she can neither know nor do her best. But whatever else woman may possess or obtain, it is universally conceded that to her belongs the domain of the house with all its resources for good or evil. In our busy, hurrying life, the husband is so much engrossed with the struggle for the means of subsistence as to leave no time, if he has any inclination, to look after the innumerable details of the household regime.

Our proposition is this: How to make common, every-day-work a pleasure both to ourselves and our families. This is the conundrum over which we have been puzzling through the years, and which we have never quite succeeded in solving. The fact is we have tried to do too much, and so have exhausted our energies upon unnecessary matters, leaving us neither strength nor time to perform patiently and cheerily the more important duties. I do not expect to give rules for housekeeping that will make it run itself. I do not even expect to tell these good cooks and accomplished domestic *scientists* how to improve on their methods and plans. I do not know how more or better cooking could be done—how neater or prettier dresses could be fabricated, or how every wish of the child could be more fully gratified, or its wants more freely supplied.

I flatter myself, however, that I am able to show them how not to do so much work, and yet being about equally good if not better results. And just in this plan I would elevate household labor to a respectable position among the arts and professions. Especially in the one line of cooking the demand for qualified labor being always in excess of the supply, the deficiency can only be supplied by having well-trained cooks in every family. Impress the daughters, and the sons, too, for that matter, with the importance and the dignity of cooking as a profession, and so instruct them that whether they may have to practice it in their own homes, or only superintend and teach it to others, they will be ready for either.

A training school for this purpose might be useful in cities and certain localities, but usually the mothers in our households are entirely competent to give the necessary instruction. The education of a majority of our young ladies is fearfully defective in this direction. Beyond the preparation of a costly, indigestible and otherwise "delicious" cake, or the pretty arrangement of a bouquet upon the tea-table, all the rest is left to mamma, and mamma tells the guest that may be present that "Jennie" made the cake, and "Jennie" is highly complimented as a splendid cook. If said guest had taken a peep in the back door at almost any hour of the long morning or hot afternoon, he might have seen the patient mother kneading dough or rolling pie-crust at the kitchen table, or stewing, baking or boiling over the stove at a temperature of 75° to 90° above.

Suppose the girls try an experiment some day with mother, and see how it works. Let Jennie and Mary some hot morning go into the kitchen. They heard mother say she had not slept well, the little brother had eaten too much cake and pickles, and was sick and peevish, and it was a very warm night any how.

Jane says, mother, I will wash the dishes and finish the ironing, and Mary will go up stairs and tidy the rooms, and then we will get dinner; and mother, you shall go right in the coolest room, and sit in the easiest chair, and have the latest magazine or paper, and rest and enjoy yourself for one forenoon. Then why not go out in the afternoon to see that dear friend of your girlhood, whose house you have not entered for years, for want of time? Don't you think mother would

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come to the dinner table looking less prosaic than she did last week after she ironed all the great washing, and cooked dinner and managed the small children, and then gave you an early tea that you might go out to enjoy the cool of the evening with your friends? I do protest, in the name of all that is fair, against the mother of a large family being the drudge, while the big strong boys and dainty girls lounge about, and wonder why mamma is so very plain and old-fashioned.

We have only supposed a case where there are grown children. In very many homes two or three little ones demand the attention of the mother, in addition to the daily routine of cooking and cleaning. If the husband can afford to provide competent help for her, of course he will do so, but if his purse is too slender for that, he can still relieve her in many ways by his own carefulness and helpfulness, if it be possible for him to command the time. Where both these resources fail, I still have some suggestions to offer the poor tired woman that might be helpful in lessening her burdens.

In the first place, let her exercise a little common sense in the preparation of food for the family. Let her provide good light bread (not hot biscuit), plenty of milk, fruit and vegetables, with meat now and then, if she can afford it, and leave off entirely the pies and the puddings, the salads and the cake, and she will have not only a healthier, consequently a happier family, but also will have saved herself many a weary step and many a dime besides. Then, second, let her leave off a part of her sewing. Who knows or cares whether the little girl has three ruffles or only one at the bottom of its dress? Or whether the clean apron be made of delicate swiss, that must be changed once or oftener every day, or of a stout pretty gingham, in which she may romp and climb to her heart's content? Third, let her do less scouring and cleaning. Now please do not understand that I advocate filthy habits in house keeping. I too believe that "cleanliness is akin to Godliness," but I also believe that a tin cup or pan may be made as clean when washed, if needful, in soap and water, as if rubbed and scratched with some preparation to make it bright, and also that it will last very much longer. And, fourth, let her remember that a little pains taken in keeping rooms and vessels and clothing in perfect order saves a vast amount of time and labor—"A place for everything, and everything in its place"—"A time for everything, and everything in its time," are mottoes which, if observed by the parents and carefully taught to the children, will go far towards maintaining order and prevent the distraction of the weekly turning inside out of the whole establishment.

These are little things, but little things make up the warp and woof of daily life in every condition, and in none more markedly than in the endless routine of home duties. The morning, the noon and the evening are all filled with little things, and this from week to week, from month to month, and from year to year.

I have always been fond of looking into the future and of conjecturing the probable improvements in certain lines of mechanism, science and art. May I be pardoned if I make a prediction right here with regard to this question of home economies? I will put the fulfillment of it so far off that you and I will never see it. But if "coming events cast their shadows before," those who live fifty or seventy-five years hence will witness its accomplishment. But in these days of new inventions seventy-five years of the present may be only five of the future.

Schools for the training of youth for professional cooks, both men and women, will be established at all our centers of business, and will be patronized as freely and by as respectable a class of people as now crowd our colleges for the study of law, or medicine, or divinity. Cooking will take rank as a profession, and its qualified teachers will receive salaries as ample, at least, as those of the other pro-

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fessions. Families will have their food prepared and baked, steamed, broiled, or stewed in communistic establishments at a cost per capita that will make it no object for a single household to run its own fires and have its own help. In that good time coming laundry work will be done so cheaply and so well in aggregation that it will not be necessary for the most frugal housewife to steam herself over the hot soapsuds, or to rub the cuticle from her hands in the effort to cleanse the soiled linen. The cream, too, will be made into the finest and yellowest of butter at a common emporium, and so with all the most toilsome and wearying occupations of the present day. Then will come woman's true emancipation from thraldom that brings her into premature old age and deprives her children in hundreds of cases of their best and truest friend years before death should have claimed her, in more favorable circumstances. The coming woman will in this millenium of the twentieth century be bright, cheerful, healthy, and happy; one whose chief care will be to see that husband and children, as well as herself, get all the good there is in life, socially, intellectually and religiously.

Probably Solomon, in looking down the ages, beheld in vision this grand, prophetical denoument when he put his famous words into the mouth of King Lemuel, "Her children arise up and call her blessed; her husband also, and he praiseth her."

MUNCIE, IND., March 12, 1884. MRS. BENJAMIN SMITH.

MADISON COUNTY.

The Madison County Horticultural Society and Farmer's Club is now in its third year, with a membership of seventy. The meetings have been good, and many valuable essays have been read, fully discussed and much information gained.

The meetings are held at the members' houses on the third Wednesday in each month.

The officers for the following year are:

President—D. K. Carver.

Vice-President—Ziba Darlington.

Secretary—Miss Mary Thornburgh.

Treasurer—McFarland Black.

FRUIT CANNING.

Mrs. T. M. Hardy, of Fallcreek township, read the following paper:

I can only give my limited experience in fruit canning. Others may differ, and I hope to hear from them.

The first and essential thing is to have our fruit plucked fresh and ripe from vine or tree. We horticulturists are expected to raise our own fruits and berries, therefore having them fresh, which is much to be preferred for canning than fruits that have been shipped a long ways.

I do not use glass cans exclusively, as I prefer tin for tomatoes, pears and peaches. Tomatoes keep decidedly better for me in tin. After preparing them in the usual way for stewing, I leave them entirely whole, removing the center or hard

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part around the stem; I then place them in tin or granite iron pans and heat them thoroughly in the oven. They retain their natural flavor best when prepared in that way. I do not season them until they are used for the table.

I have just finished canning gooseberries. After stemming I wash them thoroughly, as it is impossible to have them without the free use of helebore. I then pour boiling water over them and lift them out of this into glass cans. I then wring a cloth out of either cold or warm water, and place it around the can, and fill up with boiling water.

You may sweeten fruit or not, just as you please. It is not necessary to sweeten it in order that it may keep, but I much prefer sweetening before canning.

Strawberries are difficult to can so that their natural flavor may be preserved. I think we should enjoy them in their season as much as possible. We prepare them mostly by making a syrup of white sugar; let it boil, drop the berries into this and cook a few minutes, lift them out, boil down the syrup until quite rich.

Every housekeeper has a method of her own for canning and preserving. I could go on taking up each variety of fruit or vegetable, but fear I might grow tedious.

Fruit canned in glass should be kept in a dark place, or brown wrapping paper put around the can to exclude the light will answer every purpose.

The discussion of this topic by the members was varied and interesting.

Mrs. Ed. Roberts agreed with the essayist in the main. She desired more explicit directions for canning tomatoes, as she admitted that she had no success with that vegetable.

Dr. Hensley said that the method of canning tomatoes at his house was as follows: Scald the tomatoes, remove the skins, put into stone pans and bake in oven thoroughly, and then can in their own juice. Tomatoes carefully put up in this way retain their natural flavor and never ferment.

Mrs. Hardin said that the preservation of fruit by the canning process was a modern improvement, and had been practiced not more than forty years. There seems to be no uniform method of canning fruits and different persons meet with varying success. It would be a great advantage if some one could give a rule for canning fruit so as to preserve the berry in form, flavor, and nutrition as perfect as when it is gathered from the vine or bush.

Miss Mary Thornburgh asked for the secret of canning tomatoes in glass, as she had no "luck" with glass cans.

Hensley thought keeping the glass cans in a dark place would lessen the liability of the fruit to ferment.

Mrs. S. T. Bronnenberg uses glass for tomatoes, but rarely loses any. She puts them up with the same care as other fruit.

T. M. Hardy suggested that the condition of the fruit at the time of canning had much to do with its preservation. The dampness of the room or cellar may also cause ready fermentation.

Mrs. John Matthews' remedy for tomatoes is to prepare very small packages of black mustard, and drop one into the top of each can before sealing. She has never known it to fail to keep tomatoes as nice and fresh as the day they were put up.

Mrs. S. T. Bronnenberg and Dr. Hensley both recommended, from their personal experience, the use of one teaspoonful of tartaric acid to six quart cans of tomatoes, as an infallible rule. For green corn, Mrs. B. would use only new tin cans, and tartaric acid in proportions above given.

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For preventing mold, Mrs. Roberts had found the most effective method to be the placing of slips of paper, cut round and the size of the neck of the can, which she places on the fruit before sealing.

Mr. Whippo gave a simple rule to prevent glass cans from breaking during the process of canning. If a spoon, or any piece of metal long enough, be placed in a can with one end resting on the bottom and the other against the side of the mouth of the can, the hot fruit or vegetables may be poured into the can without any danger from breaking. It is not necessary to heat the cans before using them.

Mr. S. T. Bronnenberg always used a ladle-handle when canning in glass, as suggested by Mr. Whippo, and with satisfactory results.

PERRY COUNTY SOCIETY.

TELL CITY, IND., November 17, 1884.

To the Indiana Horticultural Society:

We have thankfully received two books of the twenty-third annual report of the Indiana Horticultural Society.

The elected officers for the ensuing year are: President, Anton Ziegelgruber; Vice President, John Feix; Secretary, Henry Kurz; Treasurer, John M. Launer; Librarian, Joseph Molinari.

By order of the Society.

HENRY KURZ,
Secretary.

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TABLE OF FRUITS

RECOMMENDED BY THE

Indiana Horticultural Society,

AT THE

ANNUAL MEETING AT NEW ALBANY,

DECEMBER, 1883.

EXPLANATIONS.

N., Northern Indiana; C., Central Indiana; S., Southern Indiana. In the season column, S. stands for Summer, A. for Autumn, W. for Winter, E. for Early, L. for Late. In the N., C. and S. column, one dot (.) denotes that the variety is unknown, or not fully tested; a dash (—), that it is known, but not approved; a star (*), that it is generally approved; two stars (**), much approved, or popular; a star and dash (*—), that it does well in some localities only.

The list of fruits is intended to be a guide to those who wish information as to the best varieties to plant for certain purposes and in certain localities. The list is too long probably, as it contains many varieties that are adapted only to the wants of the amateur. There are but few varieties out of the many that can be extensively and profitably cultivated. Those that are double starred should be most extensively planted. There are many new varieties of fruits coming to our notice annually. As these are sufficiently tested, those of merit are placed in this list.

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Revised Table of Fruits,

Number.	NAME OF FRUIT.	Dist. North.	Dist. Center.	Dist. South.	Peculiarities of Trees. Trees.	Peculiarities of Trees. Shoots.	Place of Origin.
	Apples.						
1	Alexander	✲	✲	—	Vig. upright, hardy	Dark	Russia.
2	Am. Golden Russet	✲	✲	—	Vig. upright, tender.	Dark	America.
3	Astrachan Red	✲✲	✲	✲	Vig upright, hardy	Reddish brown	Russia.
4	Am. Sum. Pearmain	✲	✲	✲	Slow g., large tree	Slender	N. Jersey
5	Aut. Seek-no-further	✲	✲	✲	Large, spreading	Slender	Penn.
6	Bailey's Sweet	✲	✲	✲	Vigorous.	Dark	New York
7	Baldwin	✲	✲	—	Vig. upright, spread	Reddish brown	N. Eng.
8	Bellflower, Yellow	✲	✲	—	Mod. grower, spread	Yellowish	N. Jersey
9	Benoni	✲	✲	✲	Good grower, up'ght	Slender, brown	Mass.
10	Belmont	✲	✲	—	Mod. grower, spread	Light olive	Penn.
11	Ben Davis	✲✲	✲✲	✲✲	Upright, vigorous	Reddish brown	Ky.
12	Broadwell	.	✲	—	Vig. and spreading	Light yellow	Ohio.
13	Buckingham	—	.	✲	Vig. and upright	Dark red	Virginia.
14	Bentley's Sweet	.	—	—	Vigorous, hardy.	. . . . .	Virginia.
15	Carolina Red June	✲	✲	✲	Light grower, up'ght	Slender, dark	N. C.
16	Cooper	✲	.	.	Vigorous, upright.	. . . . .	N. Eng.
17	Clayton	.	✲	.	Vigorous, upright.	Yellowish	Indiana.
18	Chenango Strawberry	.	✲	✲	Vigorous, upright.	Olive.	New York
19	Duchess of Oldenburg	✲✲	✲	✲	Good grower, spread	Stout, brown	Russia.
20	Dominie	✲	✲	.	Vig., spreading	Stout	America.
21	Early Harvest	✲✲	✲✲	✲✲	Spreading	Pale olive	New York
22	Early Pennock	✲	✲	—	Upright	Erect, dark	America.
23	English Russet	✲	✲	—	Vig., spreading	Slender, dark	England.
24	Early Strawberry	✲	✲	.	Vigorous, upright.	Dark	New York
25	Fallawater	✲	✲	—	Vig, spreading, tend	Stout, dark	Penn.
26	Fall Pippin	✲	✲	✲	Vig. and spreading	Stout, dark	America.
27	Fall Wine	✲	✲	✲	Med. spreading	Slender	America.
28	Fameuse	✲	.	.	Moderately vigorous	Reddish brown	Canada.
29	Fulton	.	✲	.	Vigorous, upright	Slender, l't b'n	Illinois.
30	Gilpin	✲	✲	✲	Moderately spread'g	Slender, dark	Virginia.
31	Golden Sweet	✲	✲✲	✲	Vigorous, straggling	Reddish brown	Conn.
32	Gravenstein	✲	✲	✲	Vigorous, spreading.	. . . . .	Germany
33	Gloria Mundi	—	✲	—	Vigorous, spreading.	. . . . .	Europe.
34	Grimes' Golden	✲✲	✲✲	✲	Vigorous, spreading.	Dark brown	Virginia.
35	Hagloe	✲	✲	.	Vigorous, open head	Stout and blunt	N. Jersey
36	Hoop	.	✲	—	Vigorous, upright.	Slender	Penn.
37	Hightop Sweet	✲	✲	—	Vigorous, upright.	Dark	Mass.
38	Hubbertson's Nonesuch	✲	✲	.	Vigorous, hardy.	Dark	Mass.
39	Horse	.	✲	✲	Vigorous, upright.	Light brown.	N. C.
40	Indiana Favorite	✲	✲✲	.	Moderate grower	Dark red.	Indiana.
41	Jersey Black	✲	✲	✲	Small, spreading	Slender	N. Jersey
42	Jarminite	.	✲	.	Vigorous, spreading.	Slender	Ohio.
43	Jonathan	✲	✲	✲	Moderately spread'g	Slender	New York
44	Jersey Sweet	.	.	—	Moderately vigorous	Dark brown	Unknown
45	Keswick Codling	.	✲	.	Vigorous.	Dark	England.
46	King of Tompkins County	✲	✲	—	Vigorous, spreading.	Stout and dark	New York
47	Kirkbridge White	.	✲	.	Vigorous, hardy.	. . . . .	England.
48	Large Yellow Bough	✲	✲	✲	Mod. grow., compact	Light green	America.
49	Late Strawberry	.	✲	.	Vigorous, spreading.	Reddish brown	New York
50	London Sweet	✲	.	.	Vigorous, upright	. . . . .	Ohio.
51	Lowell	✲	.	.	Vig., round head	Slender	Penn.
52	Lawyer	.	.	.	Vigorous, spreading.	. . . . .	Kansas.
53	Missouri Pippin	.	.	.	Vigorous, spreading.	Slender	Missouri.
54	Maiden's Blush	✲✲	✲✲	✲✲	Moder. grower, open	Slender	N. Jersey
55	McAfee's Nonesuch	✲	✲	—	Vigorous, upright.	Yellowish	Kentucky
56	Milam	✲	✲	✲	Vigorous, upright.	Reddish	South
57	Mother	✲	.	.	Moderately vigorous	Grayish brown	Mass.
58	Moore's Sweet	✲	✲✲	✲	Moderate grower	Dark olive.	America.
59	Mann	.	.	.	Vigorous, upright.	Slender	New York
60	Newtown Pippin	✲	✲	—	Large, spreading	Reddish	New York
61	Northern Spy	✲	✲	—	Large, upright	Reddish	New York
62	Peck's Pleasant	✲	✲	✲	Healthy, spreading	. . . . .	R. Island
63	Porter	✲	✲	✲	Vigorous, healthy	Slender	Mass.
64	Prior's Red	—	.	—	Slow grower, upright	Reddish olive	Virginia.
65	Pewaukee	.	.	.	Vigorous, spreading.	Dark	Wis.
66	Pennock	—	✲	—	Strong, vigorous.	Reddish brown	Penn.
67	Pickard	✲	✲	.	Upright, vigorous	Yellowish	Indiana.
68	Rambo	✲	✲✲	✲✲	Vig. grower, tender	Dark	Penn.

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Recommended by the Indiana Horticultural Society.

Peculiarities of Fruit.						Remarks.
Season.	Size.	Shape.	Flavor.	Color.	Quality.	
A . . .	V. large	R. con.	Acid . . .	Red stripe	Poor . .	Cooking and market.
E. W . .	Medium	Conical	Sub. acid	Pale rus't	Best . .	Table and dessert.
S . . .	Large .	Flat . .	Acid . . .	Red stripe	Good . .	Cooking and market.
L. S . .	Medium	Round .	Sub. acid	Striped .	Best . .	Shy bearer, table and dessert.
A . . .	Medium	Flat . .	Sub. acid	Striped .	V. good	Table and kitchen.
L. A . .	Large .	Round .	Sweet . .	Striped .	Good . .	Kitchen, table and stock.
E. W . .	Large .	Roun'h	Acid . . .	Red stripe	Best . .	Table and market.
E. W . .	Large .	Oblong.	Acid, rich	Yellow . .	Best . .	Best on poor soil.
L. S . .	Medium	Conical	Sub. acid	Striped .	Best . .	Dessert, kitchen and market.
E. W . .	Medium	Flat . .	Sub. acid	Yellow . .	Best . .	Tree tender.
W . . .	Large .	Conical	Sub. acid	Striped .	Medium	Fine app'rance, val. for m'kt.
W . . .	Large .	Ob. con	Sweet . .	Yel. blush	Best . .	Table and kitchen.
A . . .	Large .	Conical	Sub. acid	Striped .	Good . .	Fall Queen of some.
W . . .	Medium	Roun'h	Sweet . .	Yellow . .	Good . .	
E. S . .	Small .	Oblong	Sub. acid	Red . . .	Good . .	Liable to scab.
W. . .	Large .	Oblate .	Sub. acid	Yellow . .	Good . .	Esteemed by some for ma'kt.
L. W . .	Large .	Ob. con	Acid . . .	Dull red .	Good . .	Kitchen and market.
E. A . .	Medium	Oblong	Sub. acid	Red stripe	Good . .	Early and abundant bearer.
L. S . .	Medium	Flat . .	Tart . . .	Striped .	Good. .	Cooking and market.
W . . .	Medium	Flat . .	Sub. acid	Gr. red . .	Good. .	
S . . .	Medium	Flat . .	Acid . . .	Yellow . .	Best . .	Table and market.
S . . .	Large .	Round .	Acid . . .	Striped .	Poor . .	Market and cooking.
W . . .	Medium	Round .	Sub. acid	Russet . .	Good . .	Market and kitchen.
S . . .	Medium	Conical	Sub. acid	Red sp'td	V. good	Dessert and market.
E. W . .	Large .	Rou.con	Sub. acid	Yel. green	Good . .	Good market.
A . . .	Large .	R. con .	Acid . . .	Yellow . .	Best . .	Des't and m'kt, poor bearer.
A . . .	Medium	Flat . .	Sub. acid	Red . . .	Best . .	Occasionally scabs.
W . . .	Medium	Flat . .	Sub. acid	Red str. .	Good . .	Table and market.
A . . .	Large .	Conical	Acid . . .	Yellow . .	Good . .	Dessert and market.
L. W . .	Medium	R. obt'e	Sub. acid	Striped .	Poor . .	Cider and stock.
S . . .	Large .	Round	Sweet . .	Yellow . .	Good . .	Baking, market and stock.
L. S . .	Large .	Flat . .	Tart . . .	Striped . .	Good . .	Table and kitch'n, shy bear'r
A . . .	V. large	R. obt'e	Sub. acid	Yellow . .	Poor . .	Drying and stock.
E. W . .	Medium	Oblate .	Sub. acid	Yellow . .	Best . .	Table, dessert and market.
S . . .	Large .	Round .	Acid . . .	Striped . .	Good . .	Kitchen and market.
L. W . .	Medium	Flat	Sub. acid	Striped . .	Good . .	Twig blights.
S . . .	Medium	Round .	Sweet . .	Yel. green	Good . .	Dessert and stock.
E. W . .	Large .	R. con .	Acid . . .	Striped . .	V. good	Table and market.
E. A . .	Large .	R. con .	Acid . . .	Yellow . .	Good . .	Cooking and drying.
W . . .	Medium	Flat . .	Sub. acid	Red . . .	Good . .	Table and market.
E. W . .	Medium	Round .	Sub. acid	Dark red	Good . .	Kitchen and market.
L. W . .	Medium	R. obt'e	Sub. acid	Striped . .	Good . .	Table and market.
W . . .	Medium	Oblong.	Sub. acid	Red . . .	Best . .	Table and market.
L. S . .	Medium	Roun'h	Sweet . .	Light yel.	Good . .	Dessert and stock.
E. A . .	Medium	Oblong.	Acid . . .	Yellow. .	Poor . .	Cooking.
W . . .	Large .	Round .	Sub. acid	Red str. .	Good . .	Kitchen and market.
A! . . .	Large .	Conical	Acid . . .	Yellow . .	Good . .	Kitchen and market.
S . . .	Large .	Conical	Sweet . .	Yellow . .	Good . .	Market and stock.
L. A . .	Medium	Round .	Sub. acid	Striped . .	V. good	Dessert.
W . . .	Large .	Flat . .	Sweet . .	Yellow . .	Good . .	Best for baking.
A . . .	Large .	Round .	Sub. acid	Yellow . .	V. good	Cooking, drying and mark't.
W . . .	Large .	Round .	Sub. acid	Red . . .	Good . .	Market.
. . . .	Medium	Conical	Sub. acid	Red, yell.	Good . .	Market and table.
A . . .	Medium	Flat . .	Acid . . .	Blush . .	Good . .	Cooking and drying.
W . . .	Large .	Glob'l'r	Acid . . .	Striped . .	Good . .	Market.
W . . .	Small .	Conical	Sub. acid	Red, str. .	Good . .	Dessert.
E. W . .	Medium	Roun'h	Sub. acid	Red, str. .	Best . .	Dessert.
W . . .	Large .	Flat . .	Sweet . .	Purple r'd	Good . .	Baking and cider.
L. W . .	Large .	Oblate .	Acid . . .	Yellow . .	Good . .	New.
L. W . .	Medium	R. Obl'g	Acid . . .	Yellow . .	Best . .	Dessert.
W . . .	Large .	R., ob. c	Acid . . .	Striped . .	Good. .	Dessert and market.
E. W . .	Medium	Round .	Sub. acid	Yellow . .	V. good	Kitchen and market.
A . . .	Large .	Oblong	Sub. acid	Yellow . .	V. good	Table and market.
W . . .	Medium	R. con .	Sub. acid	R. russet	V. good	Affected by soil.
L. W . .	M. toL .	Ob. ov'e	Sub. acid	Yell, yell	Good . .	Table and market.
W . . .	Large .	Oblique	Sub. acid	Red . . .	Good . .	Market.
E. W . .	Large .	Round .	Sub. acid	Yellow . .	V. good	Dessert.
A . . .	Medium	Flat . .	Sub. acid	Gray, red	V. good	Table and market.

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Revised Table of Fruits, Recommended by

Number.	NAME OF FRUIT.	Dist. North.	Dist. Center.	Dist. South.	Peculiarities of Trees. Trees.	Peculiarities of Trees. Shoots.	Place of Origin.
	Apples—Continued.						
69	Ramsdell' Sweet	*	.	.	Vigorous, upright	Slen'r, reddish	Conn.
70	Rawles' Janet	—	*	*	Thrifty, spreading	Grayish	Virginia.
71	Red Canada	**	*	*	Moderate	Slender	Mass.
72	Rhode Island Greening	*	—	—	Crooked, spread., t'r.	Stout and dark	R. Island
73	Roman Stem	*	*	.	Moderately vigorous	Slender	N. Jersey
74	Rome Beauty	**	**	**	Thrifty, round head	Slender	Ohio
75	Red Stripe	*	**	*	Thrifty, upright, h'y	Downy	Ohio
76	Spitzenburg, Newtown	*	*	.	Vigorous, upright	Olive	N. York.
77	Spitzenburg, Esopus	*	—	—	Vigorous, tender	Dark	Mass.
78	Summer Rose	.	*	.	Moderately vigorous		N. Jersey
79	Smith's Cider	*	*	**	Vig., spread., tender	Slen'r, reddish	Penn.
80	Summer Queen	*	*	*	Vigorous, spreading	Slender, green	N. York.
81	Swaar	*	*	—	Vigorous, spreading	Stout, dark	N. York.
82	Stark	*	*	—	Vig., round head	Stout, dark	Ohio
83	Smoke-house	.	.	.	Vigorous, spreading	Dark brown	Penn.
84	Talman's Sweet	*	*	*	Vigorous, spreading	Yellowish	R. Island
85	Trenton Early	*	*	*	Vigorous, spreading		Unkn'wn
86	Twenty Ounce	*	*	.	Thrifty, round head	Reddish brown	Conn.
87	Tetofsky	.	.	.	Vig., round head	Reddish brown	Russia.
88	Vandever Pippin	*	*	—	Vigorous, spreading	Yellow brown	Unkn'wn
89	Wagener	**	*	.	Thrifty, upright	Stout	N. York.
90	Westfield Seek-no-further	*	*	*	Thrifty, spreading		Conn.
91	White Pippin	*	*	—	Vigorous, upright	Dark, downy	Unkn'wn
92	Wine Sap	*	*	**	Vigorous, straggling	Dark	N. Jersey
93	Willow Twig	**	**	*	Moderate grower	Olive brown	Virginia.
	Pears.						
1	Bartlett	**	**	**	Vigorous, upright	Yellowish	England.
2	Belle Lucrative	**	**	*	Moderate, upright	Yellowish gray	Belgium.
3	Beurre d'Anjou	**	**	**	Pyramidal	Light green	France.
4	Beurre Diel	.	—	.	Large, irregular	Dark gray	France.
5	Beurre Gifford	.	*	.	Straggling	Slen'r reddish	Europe.
6	Blood Good	—	*	*	Moderate grower	Reddish brown	N. York.
7	Beurre Clairgeau	—	*	*	V. vig., pry., produc	Reddish brown	France.
8	Beaurre Bose	.	*	.	Vigorous	Brownish olive	France.
9	Buffam	—	*	*	Erect, vigorous	Reddish	R. Island
10	Clapp's Favorite	*	*	.	Vig., upright, spr'g	Reddish brown	Mass.
11	Doyenne d'Ete	—	*	.	Vigorous, upright	Brownish red	Europe
12	Doyenne White	*	*	—	Vigorous, upright	Yellow gray	Europe
13	Early Catharine	*	*	*	Slender branches	Reddish brown	France.
14	Flemish Beauty	**	**	*	Vigorous, spreading	Dark brown	Europe
15	Keiffer		*	*	Vigorous	Reddish brown	Pa
16	Leconte				Vigorous, upright	Green	
17	Howell	*	**	**	Upright and vig'rous	Reddish brown	Conn.
18	Lawrence	*	*	*	Moderately vigorous	Dull yellow	N. York.
19	Mount Vernon	.	*	.	Vigorous	Reddish brown	Mass.
20	Onondaga	—	*	—	Vigorous product	Olive brown	Conn.
21	Rostiezer	*	*	.	Straggling	Olive	Europe.
22	Seckel	**	**	**	Compact	Dark	America.
23	Sheldon	*	**	—	Vigorous, erect	Yellow	N. York.
24	Tyson	*	*	*	Upright, vigorous	Olive yellow	Penn.
25	Winter Nellis	.	*	.	Vigorous, straggling	Reddish brown	Belgium.
	Dwarf Pears.						
1	Bell Lucrative	*	*	.	Moderate, upright	Yellowish gray	Belgium.
2	Beurre d'Anjou	*	*	*	Pyramidal	Light green	France.
3	Clapp's Favorite	.	*	.	Vig., upright, spr'g	Reddish brown	Mass.
4	Duchess d'Angoulemme	**	**	**	Strong	Reddish yellow	France.
5	Doyenne d'Ete	.	*	.	Vigorous, upright	Reddish yellow	Belgium.
6	Louise Bonne d'Jersey	**	**	*	Vigorous, upright	Reddish brown	France.
7	Vicar of Wakefield	*	*	*	Vigorous, straggling	Dark olive	France.

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the Indiana Horticultural Society—Continued.

Peculiarities of Fruit.						Remarks.
Season.	Size.	Shape.	Flavor.	Color.	Quality.	
A	Large .	Oblong.	Sweet . .	Dark red.	Good. .	Baking and stock.
L. W . .	Medium	Conical	Sub acid.	Striped .	Good. .	Dessert, market and cider.
W	Medium	Conical	Sub acid.	Striped .	Best . .	Table and market.
E. W . .	Large .	Flat . .	Acid . . .	Green . .	V. good	Drops from trees.
W	Medium	Ob. con	Sub acid.	Yellow . .	Good. .	Dessert.
W	Large .	Ro. con	Sub acid.	Striped .	Good. .	Market and dessert.
S	Medium	Conical	Acid . . .	Striped .	Good. .	Kitchen and market.
E. W . .	Medium	Round.	Sub acid.	Red . . .	V. good	Dessert and kitchen.
E. W . .	Large .	Conical	Sub acid.	Red . . .	V. good	Dessert and kitchen.
S	Small .	Round.	Acid . . .	Striped .	Good. .	Dessert.
W	Large .	Ro. con	Sub acid.	Striped .	Good. .	Market and cooking.
S	Medium	Conical	Acid . . .	Striped .	V. good	Kitchen and market.
W	Large .	Round.	Sub acid.	Yellow. .	V. good	Table.
W	Large .	Round.	Sub acid.	Dull red .	Good. .	Kitchen and market.
E. W . .	Medium	Ronnd.	Sub acid.	Red . . .	Good. .	Culinary uses.
W	Medium	Round.	Sweet . .	Yellow. .	Good. .	Baking and stock.
S	Large .	Conical	Acid . . .	Yellow. .	Good. .	Dessert and cooking.
A	Large .	Conical	Acid . . .	Striped .	Good. .	Market, cooking and drying.
S	Small .	Round.	Acid . . .	Striped .	Good. .	Market and kitchen.
W	Large .	Flat . .	Acid . . .	Gray . . .	Good. .	Unsurpassed for cooking.
E. W . .	Large .	Flat . .	Sub acid.	Red, str .	Good. .	Market and table.
W	Large .	Conical	Sub acid.	Striped .	Good. .	Table and market.
W	Large .	Round.	Sub acid.	Pale yel .	Good. .	Table and market.
L. W . .	Medium	Conical	Acid . . .	Red, str .	Good. .	Table, market and cider.
L. W . .	Large .	Ro.con.	Acid . . .	Striped .	Good. .	Table and market.
Au., Sep.	Large .	Obl.obt	Juc. sb ac	Yellow. .	V. good	Table, mrkt—very product'v.
Au., Sep.	Medium	Obt pyr	Sweet . .	P'le gre'n	Best . .	Table.
Sep., Oct	Large .	Obt pyr	Vinous .	Yellow. .	Best . .	Table and market.
Sep., Oct.	Large .	Obt pyr	Sweet . .	Yellow. .	V. good	In cold soils, coarse.
Ju., Aug.	Medium	Turb'te	Vinous .	Blush . .	V. good	
August .	Medium	Turb'te	Aromatic	Yellow. .	Best . .	
Oct., Jan	Large .	Pyrif'm	Sug. vin.	Yel crim.	Good. .	E'rly br'r—one most beauf'l.
October.	Large .	Pyrif'm	Buttery .	Cin'am'n	Best . .	Poor bearer.
Sept. . .	Medium	Ob'vate	Sweet . .	Russet . .	Good. .	Fruit variable in quality.
August .	Large .	Obt pyr	S. vinous	Yel blush	V. good	Very prod—mrkt and table.
July .	Small .	Ob'vate	Sweet . .	Yellow. .	V. good	Dessert, early bearer.
Sep., Oct.	Medium	Ob'vate	Sweet . .	Yellow. .	Best . .	Cracks in some localities.
August .	Small .	Pyrif'm	Sweet . .	Yellow. .	Good. .	Apt to rot at the core.
Au., Sep.	Large .	Ob'vate	Sweet . .	Greenish	Good. .	Table and mrkt, bears early.
October.	Large .	Obate .	But. qui.	Yellow. .	Variabl	Mkt and can'g, ea'y, g'd b'r.
October.	Large .	Bell . .	Juicy . .	Yellow. .	Good. .	Mkt and can'g, ea'y, g'd b'r
August .	Large .	Rd pyr.	Vinous .	Yellow. .	Good. .	Market and table.
Nov. . .	Medium	Ob pyr.	Sweet . .	Yellow. .	V. good	A most valuable late variety.
October.	Medium	Obt pyr	Vinous .	Russet . .	V. good	Dessert and market.
Sep . . .	Large .	Pyrif'm	Vinous .	Yellow. .	Good. .	Market.
August .	Small .	Oblong.	Sweet . .	Brownish	V. good	Dessert.
August .	Small .	Ob'vate	Sweet . .	Brownish	Best . .	Dessert and market.
August .	Large .	Obtuse.	Sweet . .	Russet . .	Best . .	Dessert, market and kitchen.
August .	Medium	Ac pyr.	Sweet . .	Br russet.	Best . .	Dessert.
Dec . . .	Medium	Ob'vate	Sweet . .	Russet . .	Best . .	Dessert.
August .	Medium	Ob pyr.	Sweet . .	P'le gr'en	Best . .	Table.
Sep . . .	Large .	Ob pyr.	Vinous .	Yellow. .	Best . .	Table and market.
August .	Large .	Obt pyr	S. vinous	Yel blush	V. good	Very prod, market and table.
August .	Large .	Ob'vate	Vinous .	Yellow. .	Good. .	Market.
July . .	Small .	Ob'vate	Sweet . .	Yellow. .	V. good	Dessert.
August .	Medium	Obl pyr	Sweet . .	Br. red. .	Good. .	Market and kitchen.
Nov. . .	Large .	Long. .	Sprightly	Pale yel .	Good. .	Market and kitchen.

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Revised Table of Fruits, Recommended by

Number.	NAME OF FRUIT.	Dist. North.	Dist. Center.	Dist. South.	Peculiarities of Trees. Trees.	Peculiarities of Trees. Shoots.	Place of Origin.
	Peaches.						
1	Amsden, same as Alexander	.	.	✲✲	Vigorous		Illinois .
2	Crawford's Early	✲	✲	✲✲	Vig., strong wood	Yellowish red	N. Jersey
3	Crawford's Late	✲	✲	✲	Vigorous	Yellowish red	N. Jersey
4	Columbia	.	.	.	Moderately vigorous.	Purple	N. Jersey
5	Early Louise	.	.	.			England.
6	Fleenor	.	.	✲	Vigorous	Light red	Indiana.
7	Foster	.	.	.			
8	George the Fourth	✲	✲	✲			
9	Gross Mignonne	.	✲	✲	Vigorous, spreading.	Reddish	France.
10	Hale's Early	✲	✲	✲			
11	Honest John	.	✲	✲			
12	Heath Cling	✲	✲	✲✲			
13	Heath Free	.	.	✲			
14	Honeywell	.	.	.			
15	Morris' White	.	✲	.	Vigorous	Light red	America.
16	Morris' Red	.	✲	✲	Vigorous	Bright red	Amersca.
17	Oldmixon Cling	✲	✲	✲			Europe .
18	Oldmixon Free	✲	✲	✲✲			America.
19	President	.	.	.			N. York.
20	Smock's Free	✲	✲	✲✲			N. Jersey
21	Stump the World	.	.	✲			N. Jersey
22	Troth's Early	.	✲	✲			N. Jersey
23	Waterloo	.	.	.	Vigorous		N. York.
24	Henrietta	.	.	.			
	Plums.						
1	Damson	.	✲	✲✲	Slender, upright	Purple	America
2	Wild Goose	✲	✲	✲	Vigorous, spreading.	Reddish	America.
3	Lombard	.	.	.	Vigorous	Purple	N. York.
4	Robinson	.	.	.	Slender, spreading	Reddish	N. C.
	Cherries.						
1	Early May or Richmond	✲✲	✲✲	✲✲	Vigorous, spreading.	Grayish	America.
2	English Morello	.	.	.	Slender, spreading		England.
	Quinces.						
1	Orange	✲	✲	✲	Slender, spreading	Dark	
2	Champion	.	.	.	Vigorous	Dark	Conn
	Grapes.						
1	Concord	✲✲	✲✲	✲✲	Vigorous		Mass.
2	Hartford	—	—	✲	Vigorous		Conn.
3	Ives	✲	✲✲	✲✲	Vigorous		Ohio.
4	Delaware	—	✲	✲	Slender		Ohio.
5	Clinton	.	.	.	Strong		N. York.
6	Moore's Early	.	.	.			Mass.
7	Norton's Virginia	.	.	.	Vigorous		Va.
8	Worden	.	.	.	Vigorous		
9	Lady	.	.	.	Vigorous		Ohio.
10	Salem	.	.	.	Vigorous		Mass.
11	Brighton	.	.	.	Vigorous		
12	Champion	.	.	.	Vigorous		
	Currants.						
1	Cherry	.	✲	✲	Strong	Stocky	Italy.
2	Red Dutch	✲✲	✲	✲	Thrifty	Slender	
3	La Versaillaise	.	✲	.	Stocky	Erect	France.
4	White Dutch	.	✲	.	Vigorous	Erect	
5	White Grape	.	✲	.	Vigorous	Strong	

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the Indiana Horticultural Society—Continued.

Peculiarities of Fruit.						Remarks.
Season.	Size.	Shape.	Flavor.	Color.	Quality.	
July . .	Med . .	Oblong.	Sweet . .	White red	Good. .	Market and table.
Aug. . .	V.large	Oblong.	Sweet . .	Yel. red .	V. good	Globose glands, flowers small
Sept. . .	V.large	Oblong.	Vinous .	Yel. red .	Good. .	Globose glands, flowers small
Sept. . .	Large .	Globl'r	Sweet . .	Red . . .	V. good	Reniform gl'ds, flowers small
July . .	Small .	. . . . .	Sweet . .	Bright red	Good. .	Reniform gl'ds, flowers small
Sept. . .	Large .	Oblong.	Sweet . .	Pale red .	V. good	Canning and market.
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
Sept. . .	Large .	Round.	Vinous .	Pale red .	Best . .	Glands globose, flowers small
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
Aug. . .	Large .	Round.	Sweet . .	White . .	Good. .	Gl'ds reniform, flowers small
Aug. . .	Large .	Round.	Vinous .	Red . . .	Best . .	Gl'ds reniform, flowers small
Sept. . .	Large .	Oblong.	Sweet . .	Yellow. .	V. good	Glands globose, flowers small
Aug. .	Large .	Round.	Sweet . .	Pale yel .	V. good	Glands globose, flowers small
Sept. . .	Large .	Oval . .	Sweet . .	Pale yel .	Good. .	Glands globose, flowers small
Sept. . .	Medium	Oval . .	Vinous .	Yellow. .	Good. .	Gl'ds reniform, flowers large
Sept. . .	V.large	Round.	Sweet . .	White . .	Good. .	Glands globose, flowers small
Aug. . .	Medium	Round.	Sweet . .	Light red	Good. .	Glands globose, flowers small
Aug. . .	Medium	Oval . .	Sweet . .	Red . . .	Good. .	Hardy and productive.
July . .	Large .	Round.	Sweet . .	White red	Fair . .	Not liable to rot.
Aug. . .	Small .	Oval . .	Acid . . .	Blue . . .	Good. .	Productive and valuable.
Aug. . .	Large .	Round.	Acid . . .	Red . . .	Good. .	Said to be Curculio proof.
Aug. . .	Medium	Oval . .	Pleasant.	Violet . .	Good. .	Hardy and productive.
Aug. . .	Medium	Oval . .	Pleasant.	Red . . .	Good. .	Hardy, prod'ive and val'ble.
June . .	Medium	Round.	Acid . . .	Light red	Good. .	Market and kitchen.
Aug. . .	Large .	Round.	Sub acid .	Dark red.	Good. .	Market and kitchen.
Sept. . .	Large .	Round.	Acid . . .	Orange. .	V. good	Canning and market.
Sept. . .	V.large	Oval . .	Acid . . .	Orange. .	Good. .	Bears young.
Sept. . .	Large .	Glob'l'r	Sweet . .	Black . .	Good. .	Market and family.
Aug. . .	Medium	Glob'l'r	Sweet . .	Black . .	Good. .	Drops badly from the bunch.
Aug. . .	Medium	Oval . .	Sweet . .	Black . .	Good. .	Market and family.
Sept. . .	Small .	Round.	V. sweet .	Light red	Best . .	Dessert and family.
Sept. . .	Small .	Round.	Acid . . .	Black . .	Good. .	Kitchen.
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
Medium	Small .	Round.	Sub acid .	D purple	Fair . .	Very productive.
Early . .	Large .	Round.	Sweet . .	Black . .	Good. .	Popular.
Early . .	Medium	Round.	Sweet . .	White . .	Good. .	
Early . .	Large .	Round.	Sweet . .	Red . . .	V. good	One of best in quality.
Early . .	Medium	Round.	Sweet . .	Purp. red	V. good	One of best in quality.
V. Early	Large .	Round.	. . . . .	Black . .	Poor . .	
Early . .	V.large	Round.	Acid . . .	Dark red.	Good. .	Market.
Medium	Medium	Round.	Acid . . .	Red . . .	Good. .	Best for general purposes.
Late . .	Large .	Round.	Acid . . .	Dark red.	Good. .	Market and family.
Early . .	Medium	Round.	Sub acid .	White . .	Good. .	Family.
Medium	Large .	Round.	Sub acid .	White . .	Best . .	Amateur.

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Revised Table of Fruits, Recommended by

Number.	NAME OF FRUIT.	Dist.			Peculiarities of Trees.		Place of Origin.
		North.	Center.	South.	Trees.	Shoots.	
	Gooseberries.						
1	Houghton	*	*	*	Vigorous, spreading.	Slender	Mass.
2	Mountain Seedling		*	*	Strong, spreading	Purple	Tenn
3	Downing		*	*	Strong	Short	N. York.
4	Smith's Imperial				Feeble	Slender	
	Raspberries.						
1	Doolittle	*	*		Straggling	Very thorny	N. York.
2	Mammoth Cluster	**	**	**	Strong	Thorny	
3	Miller's Daily				Strong		Ohio
4	Gregg	**	**	**	Vigorous and hardy	Strong	Indiana
5	Turner	*	*	*	Vigorous		Illinois
	Blackberries.						
1	Snyder	**	**	**	Very hardy	Strong	Indiana.
2	Taylor's Prolific		*				Indiana.
	Strawberries.					**Foliage.**	
1	Capt. Jack	*	**	*	Vigorous	Dark green	
2	Crescent	*	**	**	Vigorous	Dark green	
3	Cumberland Triumph		**		Vigorous	Dark green	
4	Downer's Prolific				Vigorous		Ky.
5	Green Prolific	*	*	*	Vigorous	Light green	N. Jersey
6	Kentucky	*	**	**	Vigorous	Dark green	Ky.
7	Sharpless		*		Vigorous	Light green	
8	Wilson's Albany	**	*	**	Feeble	Dark green	N. York.
9	Bidwell				Vigorous	Light green	Mich.
10	Charles Downing	*	*	**	Vigorous	Dark green	Ky.
11	Glendale				Vigorous	Dark green	
12	Warren				Vigorous	Light green	Ky.
13	Miner's Prolific				Vigorous	Dark green	
14	Manchester				Vigorous	Dark green	

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the Indiana Horticultural Society—Concluded.

Peculiarities of Fruit.						Remarks.
Season.	Size.	Shape.	Flavor.	Color.	Quality.	
Medium	Small .	Oval . .	Acid . . .	Red . . .	Good .	Kitchen and market.
Late . .	Medium	Oval . .	Acid . . .	Brown . .	Good .	Good bearers.
Late . .	Large .	Oval . .	Acid . . .	Light red	Good .	Productive.
Medium	Large .	Oval . .	Acid . . .	Light red	Good .	Not grown much.
Early .	Medium	Flat . .	Sub acid .	Black . .	V. good	Not valuable.
Medium	Large .	Flat . .	Acid . . .	Black . .	Good .	Valuable.
Medium	Large .	Round .	Acid . . .	Black . .	Good .	Family use.
Medium	V. large	Round .	Acid . . .	Black . .	Good .	The most valuable black cap.
Early .	Large .	Oval . .	Sweet . .	Red . . .	Good .	Propagates by suckers.
. . . . .	Medium	Oval . .	Sweet . .	Black . .	Good .	Hardy and free from rust.
. . . . .	Medium	. . . . .	. . . . .	. . . . .	. . . . .	Very hardy.
Early . .	Medium	Conical	Sub acid .	Dark red	Good .	Hermaphrodite.
Early . .	Medium	Round .	Sub acid .	Bright red	Good .	Pistillate.
Medium	Large .	Round .	Sub acid .	Pale red .	Good .	Hermaphrodite.
Early . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
Late . .	Large .	Round .	Acid . . .	Pale red .	Good .	Plant, pistillate.
Late . .	Large .	Conical	Sub acid .	Light red	Good .	Hermaphrodite.
Medium	Large .	Conical	Sub acid .	Light red	Good .	Hermaphrodite.
Medium	Large .	Conical	Acid . . .	Dark red	Good .	Hermaphrodite.
Medium	Large .	Conical	Sub acid .	Crimson .	V. good	Hermaphrodite.
Medium	Large .	Conical	Sub acid .	Scarlet . .	Good .	Hermaphrodite.
Late . .	Large .	Coxc'b .	Acid . . .	Dark red	Poor . .	Hermaphrodite.
Medium	Large .	Conical	Sub acid .	Dark red	Good .	Hermaphrodite.
Medium	Large .	Conical	Sub acid .	Crimson .	Good .	Hermaphrodite.
Medium	Large .	Conical	Acid . . .	Scarlet .	Fair . .	Pistillate.

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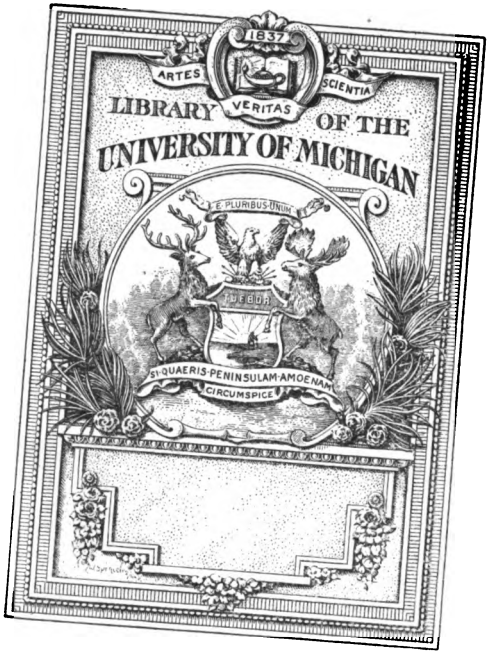

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